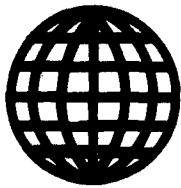


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JPRS Report

Environmental Issues

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Environmental Issues

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French Secretary Comments on Washington Global Warming Conference

PM0405083290 Paris LE FIGARO in French
19 Apr 90 p 9

["J.S." report: "The 'Greenhouse Effect' Increases the Pressure"]

[Excerpt] The international conference on global warming at least managed to heat up the participants as soon as it opened in Washington on Tuesday. Organized by the United States at President Bush's request, the two days of the conference are intended to encourage international cooperation and tackle environment problems from the ecological, scientific, and economic aspects. Several foreign delegations first deplored the fact that they did not have the right to speak in the plenary session. In fact, the conference is attended by more than 150 delegates representing 18 countries and the EEC. However, aside from a Polish delegate, all the speakers are Americans. Brice Lalonde, secretary of state for the environment summed up the "feeling of irritation felt by my European and Scandinavian colleagues," expressing the view that the Washington conference is "a bit of a public relations operation" by the Americans.

It was primarily the assessment of urgency and the definition of relations between politicians and scientists which divided the Europeans and Americans. During his opening speech, President George Bush chose to stress the appeal for detailed research before taking any action, stressing that the scientific community does not agree on the scale and effects of the "greenhouse effect." "We must make progress in scientific understanding if we are to make decisions," he stressed, reaffirming that he had asked Congress to increase the research budget on climate changes by 60 percent.

Bergen Conference Issues Previewed

90WN0064A Oslo AFTENPOSTEN in Norwegian
25 Apr 90 p 16

[Article by Ole Mathismoen: "The Environmental Conference: More Environment for the Krone"—first paragraph is AFTENPOSTEN introduction]

[Text] Ninety percent of all the acid rain which falls on Norway comes from abroad. In recent years Norwegian pollution has been drastically reduced and the price of additional cleanup is going sky-high. In Poland, on the other hand, cleanup is very cheap.

It is precisely this fact that will be in the spotlight when researchers, environmental protectionists, heads of industry, and politicians meet in Bergen in May for history's largest conference on the environment. Cost-effectiveness is becoming a central concept in environmental work as well.

Up until now, international environmental agreements have, without exception, been drafted in such a way that

all the signatory countries obligate themselves to a certain percentage of reduction. The agreement on reducing sulfur dioxide emissions assumes that each country will reduce [its emissions] by 30 percent. Norway has long since complied. Today we emit approximately 65,000 metric tons annually as compared to 160,000 metric tons in the early 1970's. But the Norwegian authorities are working tirelessly to effect further reductions. In several parts of the country industry expects tighter cleanup requirements. Norsk Hydro's aluminum plant in Ovre Ardal is one such example. The plant emits approximately 2,400 metric tons of SO₂ a year. Since the plant is located far from the ocean, the usual process of cleaning flue gas with salt water cannot be used. Instead a far more costly lye process must be used. To clean approximately 2,000 metric tons a year, the firm must invest 80 million kroner in treatment equipment. In other words, each treated metric ton costs approximately 40,000 kroner. Because most Norwegian companies are located near the ocean and can consequently use sea water in their cleaning, the average cost of one metric ton of treated sulfur dioxide in Norway is "only" 20,000 kroner.

Cheap in the East

But even 20,000 kroner per metric ton is very expensive in an international context. Calculations made by the State Pollution Division show that in Poland the price tag on one metric ton of treated SO₂ stands at roughly 2,000 kroner. In East Germany it is somewhat more expensive: 2,700 kroner per metric ton. If we look at the country which sends the most acid rain to Norway, namely Great Britain, the calculations show that there as well the price is significantly lower than in Norway: between 5,000 and 10,000 kroner for every metric ton.

These and other comparable calculations are the basis for the debate which will take place in Bergen. Indeed, more people keep asking whether countries like Norway and Sweden will continue with sky-high investments to achieve a comparatively small cleanup in relation to what would have been the result if the same amounts of money had been invested in other countries.

Four Percent Norwegian

Each year several hundred metric tons of SO₂ fall on Norway. The consequence is ever more dead and fishless waters and ever more indications that forests are being damaged. Half of this total amount of SO₂ is so-called unidentified. Nevertheless 12 percent comes demonstrably from the British Isles, eight percent from East Germany, five percent from Poland, five percent from the Soviet Union (Kola), four percent from West Germany, one percent from Sweden, and four percent from Norway itself, to mention the major sources.

Even if the cleanup effect per krone is 10 times as great in Poland as in Norway, it can nevertheless not be said that the environmental impact in this country would be greater if Norway's environmental kroner were invested

there rather than in Norway. We get only eight percent from Norway, and the amount of the country's pollution must be sharply reduced if its spread is to be reduced. If, however, we look at the investment planned by Hydro in Ardal, which will cost 40,000 kroner per metric ton, and compare it to Poland's 2,000 [kroner] per metric ton, we reach a situation in which there would also be a greater impact on our home environment if Hydro had spent the money in Poland rather than in Ardal.

Twisting Competition Around?

In Bergen there will be a discussion and a debate over a number of ideas about how countries such as Norway, Sweden, and virtually all the major western countries can transfer some of their environmental investments to Eastern Europe. Among other things, there has been discussion about setting up a fund to [help] channel money. But, as is often the case in environmental work, the problems with such a process are major ones. For example, if Norwegian companies were almost obliged to pay for the modernization and cleanup of their competitors in other countries, competition would be twisted around. Similarly it would break with the principle that the polluter pays. Since the lion's share of current environmental investment in Norway is paid for by the business community, it is not easy for politicians and others to say that now is the time for us to invest where we will derive the greatest benefit.

Overall approximately 40-50 million metric tons of sulfur dioxide are emitted in Europe each year. Norway accounts for just 70,000 metric tons. Poland alone emits 4.3 million metric tons, the GDR 4 million, the European area of the Soviet Union 11 million, West Germany 2.4 million, and Great Britain 3.5 million. These figures show that sulfur dioxide pollution is a major problem just in those countries, plus there is the fact that it crosses national borders—that is to say the weather and the wind constantly decide where the poison will fall. In addition to the fact that cleanups in Poland, the GDR or Great Britain would have a certain impact on Norway, it would have a significant impact on the local societies around the major sources of pollution. In Eastern Europe there are major public health problems as a result of SO₂ pollution. Their forests and fishing areas are far, far worse off than ours. Norwegian assistance in cleaning up Poland, for instance, would therefore greatly contribute to raising health standards.

TASS Reviews Bergen Conference

*LD1605204190 Moscow TASS in English
1845 GMT 16 May 90*

[By TASS correspondent Sergey Neshumov]

[Text] Bergen (Norway) May 16 (TASS)—With the adoption of the final declaration the international ecological forum put a finishing touch to its intensive work.

The forum, organized by Norway with the assistance from the United Nations, was attended by ministers and

other government officials from 34 European and North American countries and representatives from international organizations who discussed global ecological issues and adopted a program of joint actions to protect the environment.

The final document of the Bergen ecological forum was worked out on the basis of proposals prepared by specialists and researchers in conjunction with representatives of public organizations and the business community. It urges the world community to undertake environmental protection measures in the industry, power engineering and other sectors of the economy and public life.

The worsening of the state of the environment, demographic factors, the depletion of resources are a threat to man's life and property, because they undermine the very basis of human existence, the planet's biosphere, the declaration points out.

In order to eliminate this threat it is necessary to cooperate and coordinate the efforts of all countries, to coordinate national and international ecological programs.

The principle of preventive ecological measures is viewed as the basis for the policy in this field. It envisages forecasting, averting and eliminating causes of environmental disruptions.

There is a need to use economic mechanisms more extensively in the interests of effective protection of nature and the rational use of natural resources and power sources, the economic section of the declaration stresses.

The declaration suggests conditioning price-formation on the expenses made by enterprises to protect nature: Products made using environmentally pure technologies must be made not more expensive but cheaper than those produced at enterprises which pollute the environment.

Delegates agreed it was binding on them to render substantial financial assistance to East European and developing countries to facilitate the rational use of resources and the recuperation of the environment. They called for the establishment of an international ecological fund for the purpose.

The delegation provision that caused most debates was the one that called for a considerable reduction of carbon dioxide discharges by industrial enterprises. Most participants insisted on approving the initial formulation proclaiming it binding on industrialized countries to sharply reduce such discharges. U.S. representatives opposed the proposal, saying that the atmospheric processes and the impact of carbon dioxide releases on them have not been adequately studied. This point of view was supported by some other countries, as a result the forum opted for a compromise solution, the final version contains a call on governments to introduce restrictions.

The declaration pays much attention to the development of forms and methods of information about the state of the environment and plans for industrial building which can prove hazardous for the environment. Governments are urged to work out measures to ensure free and open access to environmental information.

The adoption of the declaration is viewed here as an important phase on the path to international cooperation in this field. At the same time the declaration is attacked by various ecological movements whose representatives say the declaration is not radical enough.

Soviet Daily Faults U.S. Stance at Bergen Conference

*PM3005124790 Moscow PRAVDA in Russian
25 May 90 First Edition p 7*

[Own correspondent Yu. Kuznetsov report: "International Conference in Bergen Ends Without Notable Success"]

[Text] Helsinki—Participants in the International Conference On Environmental Protection met in the Norwegian city of Bergen with great expectations. Representatives of 34 countries were due to discuss the ecological situation in the world today, and draw up measures to improve it.

The conference followed on from suggestions by the so-called "Brundtland Commission," a special worldwide organization operating within the UN framework of the United Nations with Gro Harlem Brundtland, well-known Norwegian politician and public figure, as its president. The commission's report, published in 1987, greatly facilitated the stepping up of efforts by defenders of the environment.

The Bergen Conference, as its participants noted, could become a new landmark in UN activity. This was made possible by the fact that it attracted not only government representatives, experts, and scientists, but also businessmen and trade union and public figures of the broadest orientations.

Over the course of three days, the meeting participants tried to work out a common line and binding recommendations for their governments. However, largely owing to the position adopted by U.S. representatives, they did not succeed in making effective decisions. The resolution approved at the meeting contains only an indication that "a majority of countries" wish to restrict harmful emissions, above all carbon dioxide emissions, into the atmosphere over the next few years. As commentators noted, "U.S. opposition" was due to the fact that U.S. enterprises account for 25 percent of total carbon dioxide emissions into the planet's atmosphere, and the installation of additional purification plants would require large expenses on the part of corporations.

The meeting participants also failed to reach agreement on the question of providing economic aid to developing

countries and support for the "ecological efforts" by East European countries. Representatives of the "Greenpeace" International Organization declared in this context that the Bergen conference should even be considered a "step backward." Addressing the conference, Finnish Environment Minister Kaj Barlund expressed his regret that, as he put it, so far there is obviously not enough political will to implement decisions which might radically change our environment for the better.

Soviet Deputy Foreign Minister Promotes International Ecological Cooperation

*18120119A Moscow NEW TIMES in English
No 12, 16 Mar 90 p 38*

[Article by Vladimir Petrovsky, USSR deputy foreign minister: "The 'Green Cross' Brigade; The Planet Needs a Center of Ecological Emergency Service"]

[Text] Some one hundred species of animals and plants disappear from the face of the Earth every day. Every day the forests of the planet shrink by fifteen million hectares and thousands of millions of tons of soil turn into dust. The ozone hole in the atmosphere has become twice as big as the territory of a country like the United States.

If humanity is to survive, the entire world community must do something definite and purposeful very quickly. The United Nations has launched preparations for a world conference on the environment and development to be convened in the summer of 1992. The Soviet Union's proposal to hold the conference at political summit level underlines its immense importance.

One of the results of the conference could be an international code of ecological ethics, rules of the civilized behaviour of states, their rights and duties in relation to nature. The conference could pass a convention on, say, the protection of biological diversity and the averting of global changes of climate.

It is also necessary to study ways of reestablishing ecological well-being in every country. The global strategy of nature conservation envisages national programmes and plans for every country. The United States Congress, for one, is holding hearings on harsher legislation for ejection of harmful waste, on revising and supplementing laws on pure air and water, the conservation and restoration of resources and on cleaning up dumps of toxic waste. By the mid-nineties, the U.S. plans to reduce the use of toxic materials in industry and in the home by 75 to 90 per cent, and to bring down the level of car exhaust to 4 per cent of the 1970 level.

The Soviet Union is now working to make up for lost time. The first-ever report on "The State of the Ecology in the Soviet Union" was made public last autumn and the Supreme Soviet of the U.S.S.R. passed a decision on "Urgent Measures to Improve the Ecology." However, we have no long-term nature conservation state programme and there is some delay in passing a law on

environmental protection and on the rational use of natural resources without which the national nature conservation mechanism cannot start functioning efficiently.

It is necessary to make full use of existing structures of international cooperation in environmental protection and the powerful potential of international organizations, the United Nations first and foremost, and its Environment Programme (UNEP). I am convinced that some of the ideas that have rallied broad international support can be translated into reality in the very near future. One such idea is the Soviet proposal to set up a centre of ecological emergency service under the U.N. The concept of emergency aid could be made operational without delay if countries would dispatch competent specialists to staff such an international "green cross" brigade. The Soviet Union will soon send the U.N. Secretary-General a list of Soviet researchers and experts whom the government is prepared to dispatch at its own expense to ecological disaster areas on orders from the centre. If other countries follow suit, the centre will start functioning.

On January 26, the Soviet Union and UNEP signed an agreement in Nairobi on cooperation to develop a plan of action to combat the Aral Sea problem. For many years, data on the situation in and around the Aral were suppressed. What happened was that the waters of the Amu Darya and the Syr Darya were diverted to irrigate cotton plantations and that resulted in a drastic reduction of water in the Aral Sea. Its level went down twelve metres, its water surface shrank by a third compared to the early sixties and the volume of its water by 60 per cent. As the water receded, pulverized soil and salt were exposed to the wind. Every year from 15,000,000 to 75,000,000 tons of dust rises into the atmosphere and is strewn over an area exceeding 200 kilometres. The Aral Sea disaster developed into proportions that require international assistance.

Of no less importance is the establishment of an international system of objective information on the state of the environment. This could include space monitoring and ecological confidence building measures, expansion of information exchange and setting up of special ecological information networks and information pools. The system could be patterned after The Global Resource Information Data Base of the U.N. Environment Programme which we should have joined a long time ago. As to confidence building measures, they could be based on the methods, procedures and instruments similar to those used in arms reduction control, including on-the-spot inspection. We could start out by setting up national nature preserves.

The Moscow forum favoured the convocation of a special world conference on the strategy and problems of survival for the purpose of disseminating information. That is a wonderful idea! Another possibility is founding an international ecological academy, national and international general educational ecological study courses

and educational centres for ecological training and retraining specifically for manufacturers.

As a result, a new branch of learning may well emerge—a science on the health of nature and the ecological hygiene of the planet which would study the effect of various factors on the state of the biosphere.

Hungarian Proposals for European Environmental Cooperation

*18120118A Moscow INTERNATIONAL AFFAIRS
in English No 3, Mar 90 pp 113-119*

[Article by Peter Hardi, director of the Hungarian Institute of International Affairs: "For a Breakthrough in Ecological Cooperation"]

[Text] In the mid 70s political and economic decision-makers of several advanced capitalist countries recognized or have been forced to recognize that industrial production has reached a level where the degradation of the environment could not be reversed and it could not be controlled or even forecasted. But, as a result of revolutionary achievements in science and technology, it has become obvious that economic development is not necessarily connected with environmental degradation. Some of these countries successfully made a structural change in their industries, mostly because of economic considerations, but partly based on this recognition. They increased the proportion of the so called clean branches of industry; in other industrial branches pollutive technologies were replaced by less pollutive ones; and significant resources were allocated to environmental protection investments. The outcome of the structural changes in these countries is the decrease of the specific raw material-and-energy-costs of the production by several magnitudes. In other words, it made possible a more saving use of resources, to stop the waste of energy and raw materials; at the same time it relatively decreased the amount of hazardous wastes and the emission of harmful pollution.

This type of development will also reduce the costs of environmental restorations (or retrofits) and, in a longer run, may also decrease the need for certain investments for environmental protection (like for cleaning technologies). These developments, however insufficient they might seem for environmentalists in the respective countries, may well serve as a comparison to the East European situations and as a desirable path to take.

In the East European countries industrial production has much later reached the level on which degradation of the environment has become as severe as it had been in the advanced capitalist countries at an earlier stage; that's why the awareness of environmental problems here is a relatively new development. In the Eastern European economies structural changes had not been carried through in the seventies, and economic development policies could not reverse the course of wasting energy and raw materials, and polluting and severely damaging the environment. In the eighties, structural changes were

aborted by the lack of financial resources, by economic hardships, and by a basically unchanged set of priorities. Without structural changes there is no hope for replacing obsolete industries and technologies at a time when the shortage is extremely severe both of investment capital and imported high technology venture capital.

Economic policy planners cannot find a way out of this vicious circle; they have no ideas, no plans, and no resources to realize new strategies for a sustainable, environment-safe development policy.

At the moment we face a dilemma: our resources for investments are even more limited than before but we need an almost immediate change in industrial policy both by economic and environmental considerations. It means the following:

We are unable to cover energy and raw material needs of an economic growth based on our previous industrial structure neither by domestic sources nor by import. The only way to overcome our persistent energy and raw material shortages is to change for saving technologies instead of increasing the import or domestic output of energy and raw materials. Most of the East European countries are lagging far behind the developed industrial countries in the efficiency of energy consumption; the indices are particularly bad in the case of Hungary and Czechoslovakia.

This problem has partly been recognized by the Hungarian Academy of Sciences recently when its top energy experts opted for no new investments in the coming decade into the energy production sector. It will affect our nuclear energy program as well as the fate of the Gabčíkovo-Nagymaros Danube barrage system under construction. In the latter debate one of the most serious economic arguments is related to this point: Why should Hungary and Czechoslovakia invest such a huge amount of money into a project with unforeseen environmental risks which will provide less than 3 per cent of our annual energy needs projected into the year two thousand by an unaltered pattern of energy reliance? The academicians share the view that we can make our energy consumption much more economical simply by changing for saving technologies and avoiding waste. (It also means that without any further investment we could save at least the amount of energy output of the Gabčíkovo-Nagymaros dam.)

The conservation of our previous type of growth would further slow down technological development and would hinder all changes necessary for a more competitive stand in the world market. The widening of the technological gap between us and the developed countries and backwardness from the main trends of development would be final and irreparable. At this point it is of great importance to emphasize the urgent need for substantial further economic reforms in the East European countries (including the Soviet Union). Even in Hungary, where economic reform has comparatively been carried to the furthest limit, we still lack a comprehensive reform of

our highly centralized and State-directed macroeconomic structure which determines our energy and raw material dependency pattern and provides the significant influence of industrial power pressure groups which still base their influence on the existing growth patterns.

Neglecting environmental issues and further postponing structural changes will dramatically decrease our export capacities. In Western Europe environmental consciousness has reached a level where environmental protection is among the top priorities. It is changing consumer patterns: consumers are increasingly willing to pay a higher price for products made by environmental protective technologies; world market appreciates environmental protective components of production costs. In Western markets pollutive products are going to be uncompetitive or devaluated.

The countries of the European Community have established cooperation in environmental policy. The Single European Act prescribes a unified standard and regulation also for environmental protection. If we cannot meet these standards and regulations there is a high probability of our exclusion from the European market. (Even EFTA countries will adjust their standards and regulations to European Community ones.)

The small size of Hungary and in most cases, small scale production reduces the competitiveness of Hungarian products in a large variety of goods; smaller series, however, may be profitable if their production is based on environment protective technologies what is appreciated also in higher prices, e.g. it seems to be ever more difficult to maintain the export level of large quantities of agricultural products in the EC market, while there is an almost unlimited market for exporting profitable bioproducts. There are excellent opportunities for such a change in the food processing industry as well.

For Hungary, it is an almost insurmountable problem that the requirements of the Western market are so different from those of the CMEA one. The latter does not require and does not pay for the extra costs of environment-protective products; there are no environmental protection standards in the qualification tests of CMEA products. It also means that if we constantly adjust to the regulations of the CMEA market, we lose the possibility of economic catch-up and face the slowdown of technological development. The adjustment of the Hungarian economy to Western standards is probably more imperative than in most other Eastern European case, partly because we have the relatively biggest share of our own products in Western exports (and this trend is to be growing in order to reduce our significant Western debts).

An additional factor to conserve our backward position is to follow a shortsighted policy of forced foreign capital import even on a price of long term consequences. This means to let our countries become the deposit sites of Western industrial wastes and pollution if they are willing to pay for it in hard currency. We cannot even

estimate how much it would cost us to repair the damages of such a policy in the future.

Our economic hardships tend to promote shortsighted approaches which usually consider environmental protection as a less important issue, definitely not as a top priority. Unfortunately, these approaches simply reproduce our own poverty. Environmental protective technologies and equipments may have a higher price but the costs of repairing environmental damages and degradations or those of retrofitting unpolluted environment are essentially higher. Our political and business leaders still share a view which deprives them of preventive actions. It does not simply mean that they prefer cheaper immediate solutions even at the risk of later higher costs but also an approach in all planning activity which considers costs only in direct economic terms and neglects environmental factors as parts of the overall costs.

A good example for this approach is clearly presented in the already mentioned Gabčíkovo-Nagymaros Danube dam project where a) environmental damages have not been calculated into the overall costs (even the construction of the sewage cleaning systems which is a precondition of a safe operation have to be constructed from separate, mostly inadequate local resources); and b) the planners and constructors are not willing to invest into preventive methods; their approach is first to wait if there were any environmental problems and if yes, try to reduce the harms during operation. This is, by the way, the method which always proved to be the most expensive everywhere all over the world.

The change of industrial structure to environment-protective one necessitates new investments which would be possible only after a change in approaches both at the enterprise and the government level. This, however, is taking us to political problems because the conditions of a genuine change in our economic approaches are mainly political ones. We have to overcome the state and government or party monopoly in decision-making and reduce or eliminate the informal and behind-the-scenes influence of economic pressure groups. We have to make the decision-making process open to public and to parliamentary debates and control. Though the whole structure of our political life has not favored these changes up to now, there is a new chance given both by the Soviet glasnost policy and the changes in Hungary.

Our governments have to understand that the deep concern for environmental problems comes from local and national patriotism, from a responsible attitude for our resources and from the growing understanding of our responsibility for the next and future generations. Governments should not label these activities hostile and oppositional and definitely should not oppress them; rather they have to find common ground for joint actions. The reference to scarcity of resources cannot be an excuse; it rather highlights the need for changing priorities and creating new development pattern.

The Possibility of a Sustainable Development

The notion of sustainable development is already quite well-known not only among environmentalists but also among economic planners. Though there are quite considerable reservations concerning the feasibility of sustainable development especially in countries which are just trying to catch up in their economic output to the more developed nations yet the compelling factors of resource scarcity and environmental degradation forbid us to abandon this idea.

The very idea of sustainable development is to link any kind of economic-industrial development to energy and resource conservation and to the prevention of environmental degradation by alternative and clean technologies and pollution-reducing production systems.

It basically means a new concept of economic growth which tries to meet the needs of present generations without risking their own well-being and without compromising the ability to meet the needs of a next generation.

The changes which are in progress both in Hungary, Poland, and the Soviet Union offer a unique possibility to redefine sustainable development. This notion has permanently been associated with third world countries and extreme poverty. I am, however, convinced that it is quite meaningful to speak about sustainable development also in a broader sense. In all three countries mentioned above everybody speaks about the obsolete economic structure and the almost unbearable burdens it puts on both the leaders and the populace. There is also a wide-spread discussion of wasteful production and inefficient use of resources. Finally, there is a growing uncertainty in defining goals, especially long-term ones, for the society.

We can witness a debate on the notion of socialism in which nobody can offer an acceptable new concept: the old one is empty or proved to be wrong (leaders identify the previous model with a dead-end street). Reform communists hardly can distinguish their program from a social democratic one and there is almost nothing genuinely new to offer.

Both traditional and reformist communists are trapped in the logic of industrial development; the difference between them is mainly in terms of democratization and decentralization—from the relevant economic point of view these terms are essentially methodological rather than substantial in character.

While sustainable development has its own relevance to general human values, and should be pursued independently from ideologies or politics, it can well be a significant element of a genuine third approach which is different both from capitalism and traditional socialism. It represents a new global value and a new world view which tries to break our consumerism-driven, wasting patterns. The reform-oriented East European countries

have a rare chance to adopt a sustainable development-related new economic development pattern and link the restructuring of economy to an environment-conscious sustainable development. If it succeeds, it will provide an influential example not only to third world countries but also to the West.

Being aware of the pervasive character of the previous development pattern, probably the first step in introducing sustainable development strategies is the dissemination of a new thinking and the creation of a consensus on the most important and immediate problems and priorities to be addressed. These are goals which best can be achieved by East-West cooperation in the sense of Western aid in promoting both a change of belief system and the setup of new priorities.

Sustainable development does not necessarily mean unprofitable production; just the contrary, it is linked to the promotion of technologies which are both safe to the environment or help changing for cleaner solutions and yet are rather profitable. We can find excellent examples in the energy conservation field, like the insulation industry or the energy efficient electric household appliances industry, or the organic food production, etc.

Proposals for Environmental Policy Cooperation

Pollution and the degradation of the environment is no more a local or a national problem. Territorial pollution has a characteristic to become regional, from regional to national, from national to international, and, in worst cases, from international to global.

International approach in environmental policies are justified also because of the transient fluxes of pollution. Hungary is affected by fluxes of pollution from different directions, especially from the north and the south-east. It means an urgent need for regional cooperation in the field of air and water protection. Pollution, however, is spread not only by surface waters (rivers) or acid rain but also by the export and import of products and technologies what is largely characteristic to the East European region. The responsibility of the respective countries is mutual.

Hungary has accepted the findings and recommendations of the Brundtland report. The following list of proposed measures and ideas is also compatible with the recommendations of the Brundtland report.

1) The CMEA countries should urgently elaborate a list of norms which—even in the present obsolete and unreformed structure of CMEA—guarantees the following:

- the costs of environmental protective technologies are taken into consideration both in the costs of production and in the prices of their products in mutual transactions;
- in case of alternative and substitutable products, buying environment-protective ones should be mandatory.

2) There is a need to establish a standardized international monitoring system to control air, water, and soil

pollution. The existing monitoring system is obsolete, its data are irregular, insufficient, and frequently unreliable. It does not solve the problem of exact testing of incoming and outgoing pollution (e.g. in the case of international rivers). An up-to-date monitoring system has extreme importance in cases of mishaps or catastrophes. We propose to sign an agreement to establish a standardized, international monitoring system in the region which could supply continuous and reliable data.

3) It has a priority importance to measure incoming and outgoing pollution in the case of the Danube. For example, the Hungarian-Czechoslovak agreement on the construction of the Gabčíkovo-Nagymaros dam refers to the regular testing of water quality; but the evaluation of these tests is meaningful only if we can compare it to a so called zero-situation. The zero-situation, by definition, is the situation prior to the construction of the dam, so we need tests and comprehensive data immediately—these, however, are missing and the whole issue has remained unsolved.

It seems to be plausible to create an international Danube-monitoring system which would comprise an internationally linked network of automatic testing posts. The data should be evaluated in a neutral international centre and both the testing posts, methods, and the data would be open for international verification. Such a system can be established in a joint effort of the countries along the Danube, with joint investments and equipments (as an East-West joint venture). The foreseeable completion of the Rhein-Main-Danube canal gives additional importance to this proposal. This system could exist, of course, as a part of the suggested international monitoring system, thus reducing the costs of implementation and operation.

4) We propose to establish a regional coordination centre for environmental protection. It would elaborate recommendations and solutions for environmental policy and problems; would provide professional justification for certain measures as well as controls for adjustments. This centre could conduct basic research too, while coordinating research in the field among specialists of the East European countries (mainly Hungary, Czechoslovakia, Poland, the GDR, Yugoslavia, and the Soviet Union) and certain West European countries (Austria, FRG). This centre could specify in concrete steps the recommendations of the Brundtland report for this particular region in the field of technology, environmental economy, supporting branches of industry, etc. This coordination should take place beyond the framework of the CMEA and of any Western institution (like EC) and would preserve an autonomous status. It would function as a non-partisan, non-governmental institution, open and available for international agencies, both private and public.

This centre could also function as an international data bank in environmental protection issues, and could also coordinate the international monitoring system's activity.

The growing awareness of environmental problems in Hungary contributes to the emergence of a well trained professional group to deal both with research and policy implementation in environmental field. A few centres are already dedicated to environmental studies in the natural as well as in the social sciences. These can provide the framework in which this project could be implemented. So it seems to be reasonable to set up this centre in Budapest. It could support Hungary's bridging role in East-West relations, or her possible integrating efforts in the Central European region. It would help to promote the orientation for selecting a more suitable trend of technology development and would fit into the line of structural changes. It should exist as an independent institution but could and even should get government support to create certain minimal conditions of cooperation between government agencies and citizen initiatives.

It needs mentioning that establishing a similar or identical centre was also recommended by the American president Mr. Bush during his visit to Hungary in July 1989. The novelty of his approach to East European economic problems was exactly the emphasis he put on environmental issues. The seriousness of his concern was shown by his commitment to devote five million US dollars to set up the above mentioned centre in Budapest.¹

Ecology and International Politics

Environmental issues created political debates and inter-governmental tensions among East European countries, like a south-eastern Rumanian chemical plant's effects on the Bulgarian city Ruse, or the heavily polluted industrial triangle at the Polish, Czechoslovak, and East German borderline. Such conflicts spoil the Czech-Polish relationship in the Silesian industrial region, see especially Polish protests over a Czech cokes-plant under construction. And examples could be further given to river pollutions as a recurrent source of bilateral and sometimes multilateral conflicts.

Environmental issues also have domestic political significance, influencing public debates, government decisions, and investment policies (see the debates on the Danube dams or on nuclear waste deposit sites in Hungary). In the Soviet Union it has emerged not only in such significant issues as the reversal of the Siberian rivers or the closing down of dangerous nuclear power stations but also in a less obvious way: it is an element of nationality conflicts as well. It is especially true if we can prove the linkage between national-ethnic hostility and scarcity of resources (which obviously is the case); in the scarcity situation, any damage to vital environmental resources can aggravate or trigger long existing ethnic, religious, etc. conflicts. One of the clear environmental related such issues is the desperate resistance of Estonian experts and later also politicians to the central Soviet plan of exploiting phosphorite layers in the North-Eastern part of the Baltic state on the expense of very serious environmental risks and degradation.

International conflicts arising from environmental problems, the management and/or resolution of these conflicts, however, are not yet analyzed in any systematic way, and they still belong to the white spots of East European studies. Despite the growing number of scientific and professional works and research dealing with environmental issues there is a complete lack of research both in the domestic and foreign political decision-making dimension of these issues. This situation calls for a systematic study of environmental conflict management technic. This type of study is an excellent opportunity for an East-West cooperation a) in the elaboration of negotiation technic and conflict resolution methods for international environmental problems; b) in its application for educational training.

Our governments must be more conscious of the emerging conflict situations in a period when the overall relations among East European countries are in a stage of continuous change. Growing popular pressures to deal with environmental conflicts and to be more open and public in information compel government officials to elaborate adequate negotiating technic which can reduce tensions and help to solve the problems. The involvement of independent, neutral experts and/or non-governmental agencies which are able to coordinate such expert activities can provide a suitable framework for such activities, justifying at the same time the possibility of East-West cooperation in the field.

East European countries have joined many international agreements and protocols in the field of environmental protection. Yet the basic breakthrough in environmental policy has still to come. It seems to be a better strategy to voluntarily change concept and policy and set up new priorities than to wait for domestic popular pressure and the demands of external powers, especially in a case in which these pressures and demands for a different policy are fully justified.

Footnotes

1. Our idea to establish such a centre was first presented to the Hungarian government in February, and to the international expert community in March, 1989.

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International Bering Sea Fishing Forum Reported

OW0505011690 Moscow in Japanese to Japan
1000 GMT 21 Apr 90

[From the "Soviet Far East News" program]

[Excerpts] First, here is a report from Khabarovsk:

Listeners, an international symposium was held in Khabarovsk this month, and various problems on fishing in the Bering Sea were discussed at the symposium. Present at the symposium were scholars and fisheries personnel

from the Soviet Union, Canada, the United States, China, Poland, the ROK, and Japan. A topic of heated discussion at the symposium concerns the situation of Alaskan pollacks, the major resource in the Bering Sea. As was pointed out at the symposium, fishing boats of ten nations currently are engaged in catching Alaskan pollacks in the Bering Sea, and the total annual fishing catch amounts to more than 1.5 million tons.

Meanwhile, surveys conducted by Soviet and American scholars clearly indicate that Alaskan pollacks caught in the waters of the Bering Sea belong to both Soviet and U.S. fishery resources. The breeding of Alaskan pollacks takes place in American waters near Bogoslof Island. However, the pollacks spend both summer and autumn in Soviet waters. The waters of the Bering Sea serve as the route for their migration during their spawning season. Because no limit has been set on offshore fishing—that is, fishing in the open seas—Alaskan pollacks have been decreasing rapidly.

According to scholars' views, there currently is no effective international law to control fishing within the 200-mile economic water zones of both the Soviet Union and the United States. This has become a cause for apprehension. Concerning this problem, Oleg Muratov, candidate for doctor of economics and deputy director of the Pacific Oceanic Fisheries Research Institute, states as follows:

[Begin Muratov recording in Russian fading into Japanese translation by announcer] The first academic symposium on this issue was held at Sitka City in Alaska two years ago. At that time, no basic problems concerning Alaskan pollack resources were brought up at the symposium, and the annual catch reached about 1.3 to 1.4 million tons. The catch gradually increased and has now reached over 1.5 million tons. Today, this problem concerning Alaskan pollack resources has become a serious unparalleled issue. I feel that it has become a serious problem that has far exceeded the framework of the bilateral treaty signed between the Soviet Union and United States. I believe that the time has now come for setting up an international committee to control Alaskan pollack fishing in the Bering Sea. Reckless fishing may cause extremely large changes to the whole ecological structure of the waters in the Bering Sea. This is because Alaskan pollacks are one of the major kinds of fish in the Bering Sea.

This is what Mr. Muratov has stated.

When these facts are taken into consideration, we should note that a purely biological issue is closely connected with political problems. In this regard, such a symposium is somewhat different in nature from common academic symposiums. [passage omitted]

Mr. (William Aron), director of Alaska's Fish Resources Research Institute, states as follows:

In many points, participants at the symposium have made different observations of the situation. However,

they reached a consensus that urgent measures must be taken to protect the most adequate (?population) of the fish in the Bering Sea, which is one of the outstanding fishing zones in the world. Concerning this problem, I feel that international cooperation among ichthyologists will play an important role. To settle the problem through joint efforts, participants in the current symposium have reached an accord on exchanging information and promoting other effective cooperation.

This is what Mr. (Aron) has stated.

On the last day of the international symposium held in Khabarovsk, a Radio Moscow reporter met Professor Tadashi Sasaki, leader of the Japanese delegation and chief of the Northern Sea Resources Department [NSRD] under the Oceanic Fisheries Research Institute [OFRI] of the Fisheries Agency, and asked him many questions on the symposium. Mr. Sasaki states as follows:

[Begin Sasaki recording]

I am Tadashi Sasaki of the OFRI under the Fisheries Agency. At the institute, my position is chief of the NSRD. My purpose in coming to Khabarovsk is to attend the symposium sponsored by the Soviet side as leader of the Japanese delegation. [passage omitted]

All the nations concerned have attended the current symposium. Many papers on various analyses made from different standpoints on the Bering Sea's precious resources of Alaska pollacks have been submitted to the symposium, and fruitful discussions were held. In this sense, I think we can highly appraise the symposium.

Last, I feel that such a symposium will contribute to the development of relations between Japan and the Soviet Union. [passage omitted] [end recording]

This is what Mr. Sasaki has stated.

Austria Concerned About CSFR Nuclear Power Plans

*AU2205140490 Vienna Domestic Service in German
1000 GMT 22 May 90*

[Fritz Pesata report on news conference by Chancellor Franz Vranitzky after the cabinet meeting in Vienna on 22 May]

[Text] The Austrian Government is deeply concerned about the announcement by the CSFR that it will build more nuclear power plants by the year 2000. At the meeting with his counterparts from Austria's neighboring countries last Sunday [20 May], Foreign Minister Alois Mock made the proposal that Austria would provide money and technology to the CSFR to improve its

brown coal power plants, which would make nuclear power superfluous. Chancellor Franz Vranitzky today addressed an official letter to Prime Minister Marian Calfa on behalf of the Austrian Government, in which he expresses his deep concern about the plans of the CSFR.

[Begin Vranitzky recording] I took this opportunity to brief the government on this matter, and to be authorized to immediately address a letter to Prime Minister Calfa on behalf of the Austrian Government, in which I once more express the concern and the rejection by the Austrian population of the nuclear power plant projects in the CSFR, and in which I offer the CSFR to jointly formulate national and cross-border energy policies. We offer comprehensive aid in the form of expert knowledge. We named the three ministers today that are concerned with this matter—Flemming, Streicher, and Schuessel—so that they can immediately contact their CSFR counterparts. We also stressed—that we will also be mentioned in my letter to Calfa—that we are ready to cooperate financially, because, while recognizing the depressing situation in the CSFR, we do not want to accept the construction of new nuclear power plants in our immediate vicinity.

[Unidentified reporter] Could you specify the financial aid that Austria would provide to improve the thermal power plants in the CSFR?

[Vranitzky] This is no secret. This would fall under Austrian exports, and Austrian exports are financed through the Austrian Control Bank. Unlike other East bloc countries, the CSFR is not heavily indebted internationally, so there will be no immediate problems concerning its financial standing. Thus, it will be possible to settle the financial aspects. [end recording]

Austria Reiterates Concern About CSFR Nuclear Plans

*AU2505114890 Vienna Domestic Service in German
1000 GMT 25 May 90*

[Text] Prague thinks that Austria is not competent enough in the field of nuclear energy. In a report by the official news agency, CTK, the Austrian media are accused of making a bogeyman out of nuclear power in their reporting on Czechoslovakia's nuclear power policy. According to CTK, the Prague government will continue to concentrate on the development of nuclear energy in order to alleviate the ecologically burdened regions in north Bohemia.

Reacting to this, Vice Chancellor Riegler stated today that Austria does not want to interfere. However, the Austrian population is greatly concerned about Czechoslovakia's nuclear energy development plans. He suggested that a joint working group be established to deal with open questions.

Cap, general secretary of the Socialist Party of Austria, said that everything possible must be done to prevent Czechoslovakia from implementing its nuclear energy

development plans. Any kind of support from Austria is also required for this purpose.

CSFR Charge Comments on Austrian Nuclear Power Stance

*AU2505214790 Vienna Television Service in German
2011 GMT 25 May 90*

[Interview with CSFR Charge d'Affaires to Vienna Jozef Banas by news moderator Elmar Oberhauser in Vienna on 25 May—live]

[Text] [Oberhauser] The controversy over the use of nuclear energy in our neighboring country [CSFR] continues. The official CSFR news agency CTK reacted to the statements by Austrian politicians on the use of nuclear energy in the CSFR in an unusually harsh way. The Austrian concerns are mystifications, it said, and Austria's competence concerning nuclear energy is deficient. I welcome here in the studio the CSFR deputy chief of mission to Austria, Mr. Jozef Banas. Good evening. Are these harsh words, as I quoted them, the words of your government, or are these the words of a journalist? In other words, how seriously does one have to take CTK?

[Banas] Times are past when the statements of our media, in particular of CTK, were the statements of the government. This is the contribution of an individual journalist, who expressed his view.

[Oberhauser] Then I would like to formulate the question differently. What is your government's attitude to this criticism by Austria concerning the CSFR insistence on the use of nuclear energy?

[Banas] Permit me to first correct the statements of your colleague a bit. The CSFR does not accuse Austria or the Austrian experts of incompetence, but only the mass media.

Our government understands the concerns of our dear Austrian neighbors very well. Please, believe us, our government equally well understands the concerns of our citizens. After all, in particular Czechs and Slovaks live around Temelin, Dukovany, [word indistinct], and Bohunice.

We all lived through Chernobyl. There is, perhaps, one exception to this, and this is media coverage. As you know, at that time we had a totalitarian system. The media reported only half-truths on the events in Chernobyl.

[Oberhauser] The media in the CSFR?

[Banas] The media in the CSFR, of course. The result was that we stopped believing our own media. I think that now, after the revolution, there is no doubt that our new government and our president speak the truth. Nevertheless, in our country there have not been any big, massive protests against nuclear power. Of course, I do not intend in any way to relativize the problem by saying

this. I only want to say that we would be very grateful if the journalists used objective sources. In this connection, I would also like to reproach the journalist of CTK, because he practically generalized the coverage of Austrian media. Not all media wrote that our experts are incompetent and even drunk. DIE PRESSE and DER STANDARD, for instance, carried very serious and solid reports.

[Oberhauser] Let us leave the examination of the amount of truth carried by the media on both sides of the borders. We would need a very long time for this. Let us discuss nuclear energy. You yourself said that we lived through Chernobyl. You also said that the CSFR people are not or are little afraid of nuclear energy. Why do you not take the fears of the Austrian people seriously? Recently you developed good-neighborly relations. Are the fears of the Austrians not being taken seriously in your country?

[Banas] Of course, we take the fears of the Austrians very seriously. As I said, I do not want to go back to the media, even though they play a decisive role in this. Look, we know that the main pollution of the air comes from brown coal plants. As you know, entire areas in northern Bohemia are completely exhausted. The people are sick, 95 percent of the forests are dead. These brown coal plants also considerably pollute the air in Austria. I think that by building safe nuclear power plants we will also improve the air in Austria.

[Oberhauser] However, there are many people—including experts—who say that this is the wrong way. It is, indeed, right to close down the brown coal power plants, but nuclear energy is the wrong way. Now Austria has offered to help. There is an offer by the economics minister—I think with 28 specific points; Chancellor Vranitzky has sent a letter to your head of government; Foreign Minister Mock said that we want to help. Do you not want to accept this help or does this not solve your problem?

[Banas] Look, I am not an expert. We know that other countries, such as France, for instance—this country gets 75 percent of its electricity from nuclear power plants—or the FRG, Sweden, and Belgium.... [sentence incomplete as heard] Of course,

[Oberhauser interrupts] May I contradict you. I do not want to be impolite, but the FRG has renounced Wackersdorf [nuclear recycling plant in Bavaria]; in Switzerland, where, I think, four or five nuclear power plants are in operation, there will be a referendum on giving up nuclear energy; Austria did not put a completely finished nuclear power plant into operation—15 billion schillings were thrown out of the window. Should one not think about this?

[Banas] Look, in any case, we are very grateful to the Austrian politicians—to the chancellor, Vice Chancellor Riegler, Minister Schuessel, and others—who have made very serious offers to us. Of course, the government will examine these offers very thoroughly. The day after

tomorrow there will be a meeting here in Vienna—even though this will not be the main topic, our new deputy premier will certainly also discuss this problem with the Austrian side.

We also are not particularly enthusiastic, but, look, perhaps in the future there will be an opportunity to find a way out. But we need electricity, and now it is important that the nuclear power plants are safe.

[Oberhauser] Mr. Banas, you are a diplomat and politeness is inborn in diplomats in contrast to journalists. Is what you just said more than just politeness? Will the problem still be discussed? Will there be negotiations? Has the last word not yet been said, so to speak?

[Banas] Certainly not. Over the next few days, our government will adopt a new program on energy supply to our country, but, of course, this does not mean that we will (?renounce) the nuclear program.

[Oberhauser] The issue will be discussed.

[Banas] Certainly.

[Oberhauser] Thank you very much for coming.

CSFR Official, Austrian Vice Chancellor on Nuclear Power Debate

*AU2705184090 Vienna Domestic Service in German
1500 GMT 27 May 90*

[Ilse Oberhofer report]

[Text] One week after the meeting of the foreign ministers of the so-called Pentagonal Association, the deputy heads of governments of the five countries Italy, the SFRY, Hungary, the CSFR, and Austria, met in Vienna today. This new working group was established in connection with the fundamental changes that took place in Eastern Europe last fall. As a matter of fact, the politicians reached agreement on the founding of a Vienna-based environmental data bank, but a news conference after the meeting was dominated by the newly erupted conflict between Austria and the CSFR over the of construction of nuclear power plants. The deputy head of the CSFR Government, Armin Delong, sees no immediate alternative to nuclear energy for his country.

[Begin Delong recording] As a matter of fact, Austria is not threatened by just the CSFR. There are numerous nuclear power plants in other countries that are close to Austrian borders. Thus, this problem does not exist only between Austria and the CSFR. We are not able to find another alternative at the moment. During the past few days, specialists from Sweden, a country that is known for its efforts to abandon nuclear power as soon as possible and which is often cited as an example, told us that they expect this step not to be taken before the year 2010. Before this, one will see whether it is at all possible. [end recording]

The Austrian host, Vice Chancellor Riegler, expressed satisfaction about the fact that the five countries united in the Pentagonal Association want to tackle this problem jointly now in a newly created working group for energy and environment. Riegler did not show understanding only for the emotions of the Austrian population, but also for the difficulties the CSFR is facing.

[Begin Riegler recording] It would be unfair to demand that our neighbors abandon nuclear power overnight. They are faced with a big dilemma: on the one hand, they must improve the caloric power plants that pose a burden to the environment, and on the other they must ensure the required energy supply and achieve the greatest possible safety in the generation of nuclear energy. For this reason, I consider it important to jointly find a solution to this problem, on a bilateral basis and within the framework of the Pentagonal Association. [end recording]

Poland, Sweden Sign Environmental Protection Agreement

LD2205042690 Warsaw PAP in English 1627 GMT 21 May 90

[Text] Warsaw, May 21—Poland received 300 million Swedish kronor [some 45 million dollars] from Sweden to finance environmental protection projects in this country within three years.

An appropriate agreement on cooperation was signed today by Swedish Minister for Cooperation With Developing Countries Lena Hjelm-Wallen and Minister-member of the Council of Ministers Witold Trzeciakowski.

The Swedish minister said she was in charge of cooperation with Poland in environmental protection, which had been for a long time discussed by the two sides. She added that different projects were developed with regard to technical and technological matters and cadres training. She said that the Swedish side would like the agreement to encourage Swedish enterprises to establish cooperation with Poland.

USSR Cancels Nuclear Plant Near Finnish Border

LD2105162190 Helsinki Domestic Service in Finnish 1300 GMT 21 May 90

[Text] The nuclear power station projected by the Soviet Union for Tikjaervi [Tikozero] near the Soviet-Finnish border has been canceled. Premier Harri Holkeri announced in connection with the meeting of the Soviet-Finnish Intergovernmental Economic Commission that the Supreme Soviet of Karelia has also decided to curtail all planning and construction work on nuclear power stations in the territory of Karelia. Holkeri said that the decision was reported to him by the Soviet chairman of the commission, Stefan Sitaryan.

Soviet Hydrobiological Research Team Returns From Iran

NC1705130490 Moscow in Persian to Iran 1700 GMT 16 May 90

[Report by Gennadiy Viazovskiy in Crimea]

[Text] The scientific research ship Professor (Modianskiy) has returned to the Soviet port of Sevastopol on the Black Sea. Scientists of the Biological Institute of Southern Seas of the Ukraine Academy of Sciences carried out hydrobiological research in the Persian Gulf and the Sea of Oman on board this ship for three and a half months. Gennadiy Viazovskiy, our correspondent in Crimea, reports that the ship arrived in Bandar-e 'Abbas where various meetings were held with Iranian scientists and discussions were carried out on the biological life of the Persian Gulf and the Sea of Oman and on ways to prevent the pollution of these waters.

The results of all the research carried out during the Soviet scientists' 31st trip will be placed at Iran's disposal free of charge once scientific reports are prepared. This was stated by Professor Georgiy [name indistinct] who headed the Soviet delegation. He added: This cooperation became possible with the implementation of the long-term scientific-technical cooperation program which applies until the year 2000. This also delineated the areas in which the Soviet Union and Iran will cooperate.

This program was signed during the visit paid by Iranian President Hashemi-Rafsanjani to our country last summer. This summer the Soviet and Iranian scientists intend to continue their joint efforts which will be aimed at preventing the pollution of the Caspian Sea and at preserving its biological resources. The scientists of Sevastopol will actively participate in this project. This cooperation will help Iran to increase its fishing capabilities and thus to help it overcome foodstuff shortages. Iran received assistance in the past in the construction of fisheries for the breeding of fish for caviar and in training experts for this unit.

Gennadiy Viazovskiy reports in conclusion that, in addition to this, a number of fishing vessels have been delivered to Iran by the Soviet Union.

Details of Baltic Oil Tanker Collision Reported

PM2105100790 Moscow IZVESTIYA in Russian 18 May 90 Morning Edition p 6

[Correspondent N. Burbyga report under the rubric "Happenings": "Collision in Baltic"]

[Text] As already reported in the "Vremya" program, at 1040 on 14 May the "Volgotanker" Shipping Company's motorship Volgoneft-263 collided with the West German ship Betta [name as transliterated]. Our correspondent is told the details of this incident by M. Belyayev, chief of the Russian Soviet Federated Socialist

Republic River Fleet Ministry's Main Inspectorate for Shipping Safety and Protection of Installations.

"First of all, I must specify that what happened was not a collision. Our ship, which was sailing the route from Petrozavodsk to Copenhagen at a speed of three knots per hour, was, you might say, 'attacked' in fog by the West German Betta. It was struck on the port side in the region of the third and fifth tanks. A hole approximately five meters deep was made. According to preliminary data, more than 50 tonnes of oil (according to other reports, 900 tonnes—author) escaped through it.

"In conjunction with the Swedish coastguard of the port of Karlskrona the captain of the motorship Betta was issued with a statement of responsibility, which he signed. The captain did not make a counterstatement. The coastguard established the need to examine the captain of the motorship Betta and the other crew members for alcohol. There is a suspicion that a watch was not being kept on board the ship. In this connection the port police were summoned and escorted the motorship into port to conduct a medical examination of its crew members. We do not yet know anything about its results.

"The motorship Betta belongs to an FRG company. It has 200 tonnes of potatoes on board. The vessel has a displacement of approximately 400 tonnes.

"Seven oil gatherers from Sweden are working to gather up the oil. The large special oil-gathering ship Svetlomor has gone to the scene of the accident. Why has the ship gone only now? The Swedish authorities did not give their permission. It was only 15 May that they allowed the ship to enter their waters. Unfortunately, time has been lost..."

The telephone rang while I was talking with Belyayev. A. Ipatov, captain of the damaged Soviet vessel, was on the line.

"Work on gathering up the oil is continuing," he reported. "The weather is calm—force one or two. The site of the spill—approximately one square kilometer—has been enclosed by booms."

The editorial office learned 17 May that two more Soviet vessels have approached the Volgoneft-263. They have pumped the remaining oil off the damaged motorship.

Japan Denies Pressuring Brazil Over Amazon Road Project

*OW1805120390 Tokyo KYODO in English 1016 GMT
18 May 90*

[Text] Tokyo, May 18 (KYODO)—A Foreign Ministry spokesman on Friday ruled out "any remote possibility" of Japanese official involvement in a controversial plan

to construct a road through the Amazon and slammed a Brazilian Government minister's remarks to the contrary as "extremely regrettable."

"It is extremely regrettable if it is true that a responsible official in charge of environmental affairs in the Brazilian Government has made a statement alleging that Japan is interested in and has already been involved in a construction project for a highway in Amazon," said spokesman Taizo Watanabe.

"This report is absolutely groundless," Watanabe told reporters.

"On the contrary, Japan has been actively promoting international cooperation for solutions of global environmental problems," he asserted.

The spokesman was reacting to reported remarks by Brazilian Environment Secretary Jose Lutzenberger in Norway on Monday that Japanese Government officials have applied pressure on Brazil to go forward with a road construction project in the Amazon that would serve as an overland route for raw material exports.

Watanabe ruled out "any remote possibility" that Japanese official development assistance to Brazil is being channeled into any such project.

As for Lutzenberger's specific allegation of Japanese Government pressure on Brazil, he said it has "no foundation."

Watanabe said the government has also looked into possible involvement by the Japanese private sector, including major construction and trading companies, as well as banking and manufacturing interests.

"All of them have denied any involvement," he said. "I think they would think twice if their reputation is jeopardized because of rumored involvement in that kind of questionable project."

The spokesman expressed exasperation at Japan's having had to deny similar charges on two previous occasions in recent memory. "I just don't understand why this allegation keeps coming back," he said.

"It looks like there is a communication problem—if there is any impediment to the further promotion of correct communication, that impediment should be removed," he said.

Intimating that bilateral ties are at stake, Watanabe said: "This unfortunate incident should be solved so that we can continue to enjoy friendly relations between our two countries."

EQUATORIAL GUINEA

Government Rejects Nuclear Waste Proposal*AB2305091090 Paris AFP in French 1158 GMT
22 May 90*

[Text] Malabo, 22 May (AFP)—The Government of Equatorial Guinea has just rejected a fresh proposal from a Panama-based company to deposit toxic waste from the United States on the mainland portion of its territory, an official source in Malabo disclosed today. This company, Development Corporation Limited, which is based in Panama, proposed \$260 million to the Equatorial Guinea Government, in exchange for permission to deposit radioactive waste composed of radon and dioxane around the Bata area in the Equatorial Guinea enclave located between Cameroon and Gabon. Proposals to invest 500 million CFA francs [Fr10 million] in the tourist and housing sectors were also made.

In an earlier development, this company had, in June 1988, offered to pay \$100 per tonne of toxic waste to be deposited on Annobon island, located off the coast of Gabon. The proposal raised protests from neighboring countries including Gabon and Nigeria, and the idea was dropped.

NIGERIA

TIDE Warns of U.S. Waste Disposal Plans*AB1205180290 Lagos International Service
in English 1030 GMT 11 May 90*

[From the press review]

[Text] The TIDE raises alarm at a report which says Nigeria and Namibia are among 12 African countries earmarked as potential toxic waste dumping grounds by an American waste disposal program. It is in the light of this that the paper applauds the decision of Nigeria's Federal Environmental Protection Agency to implement every clause of Decree 58 of 1988 in line with government's policy of detoxifying the environment. The TIDE also supports the current (?visit) to some industries known to be producing waste of high toxicity in the country.

Industrial Waste Rules To Be in Effect Before October*AB2305085290 Lagos Domestic Service in English
1800 GMT 21 May 90*

[Text] The first set of regulations to control industrial wastes comes into effect before October this year. The minister of works and housing, Major General [title as heard] Muhammed Kontagora, gave the indication in

Lagos today at the opening session of a seminar on industrial production. Correspondent Emmanuel Loenzi was there.

[Begin Loenzi recording] Under the regulations, it will be obligatory for an industry to put in place waste control facilities. They also include the enforcement of the various government edicts and decrees relating to environmental pollution, and the Federal Government's Harmful Waste Disposal Decree No.42 of 1988. The minister said the regulations had become necessary because the Nigerian environment had been heavily polluted for a very long time. He assumed that the new regulations would not only be of international standards, but would (?safely) avoid the pitfalls into which industries in the developed countries have found themselves.

Maj. Gen. Kontagora said that the regulations should be practical and enforceable—as he emphasized—in letter and spirit, and the principle of sustainable development. He noted that industries were crucial to the upliftment of the standard of living, an important life wire of the nation's economic development. Gen. Kotangora remarked that because of their production of unwanted and harmful waste, [word indistinct] and other dangerous by-products, industries were seen as major contributors to environmental pollution. The minister warned that, having been victims of the dumping of industrial waste from developed countries, Nigerians should be fully aware of the dangers posed by the careless disposal of such unwanted by-products of industrialization. He described the seminar as most timely because previous efforts to highlight the relationship between industry and environment had been limited to the oil sector. The minister expressed the hope that firm, realistic, and practical recommendations would emerge from the seminar. He advised that such recommendations should aim at the protection of the environment from the adverse effects of industrialization. [end recording]

SOUTH AFRICA

Environment Minister Opens Parliamentary Debate*MB0805160990 Johannesburg SAPA in English
1439 GMT 8 May 90*

[Text] Parliament, 8 May (SAPA)—South Africa had stepped on the road irreversibly of political, social and economic reform which would be of no avail if attitudes toward the country's natural environment were not also reformed, the minister of environment and water affairs, Mr. Gert Kotze, said on Tuesday.

Opening the debate on his vote, he said the government was greatly concerned about the welfare of the environment.

It had therefore long ago started to ensure that the environment was conserved and properly managed.

Environmental education programmes would be continued on an on-going basis.

South Africa also played an important role in many international forums.

The deputy minister of education and culture in the House of Representatives, Mr. Abe Williams, said South Africa would not succeed with its environmental actions unless the total population was involved.

He was concerned that too much emphasis was being put on the developed sections of the community.

Mr. Williams said the ordinary man was being pushed out of the fishing industry, with the only happy elements at present being the big companies.

The fishing community was in dire need of upliftment.

Segments such as crayfishermen could also play a role in promoting tourism.

Mr. C.B. Schoeman (CP, Nigel) said monitoring of pollution, especially of rivers, was not receiving enough attention.

St. Lucia in Natal should not be allowed to be damaged for the sake of short-term gain.

Parallel Development of Economy, Environmental Protection Urged

90WN0025A Beijing GUOJI MAOYI WENTI
[INTERNATIONAL TRADE JOURNAL] in Chinese
No 2, 28 Feb 90 pp 17-19

[Article by Yu Zhida (0060 1807 6671) of the Tianjin Institute of Foreign Trade: "The Development of Export-Oriented Economy and Environmental Protection"]

[Excerpt] [Passage omitted] III. How China Should Protect Environment While Developing An Export-oriented Economy

Developed Western countries carried out the process of modernization at the cost of environment and resources, resulting in the world-famous "eight major pollution" incidents of this century in the 1950's and 1960's. When we carry out modernization, we must not follow their old path of "polluting first and controlling later." The only correct strategy we should adopt is the coordinated development of society, the economy, and environmental protection. Coordinated development covers three aspects: 1) economic development is a long-term process. So in the development and utilization of natural resources, we must take into consideration the needs of both short- and long-term development and combine development and utilization with protection and reproduction; 2) economic development should provide a material and technological basis for environmental protection so that environmental protection can be more efficient; 3) under the current condition where China's economic strength is still relatively weak, environmental protection should pursue a development path that requires little investment, produces great effect, and at the same time enables economic construction to achieve results. According to this strategic demand, when we develop the export-oriented economy, we should adopt the following measures to protect our environment:

1. With regard to imported large-scale engineering projects and technical equipment, we should conduct full environmental appraisals and pay attention to their immediate economic returns as well as their long-term social environmental effect. Engineering projects which may seriously pollute the environment and areas where pollution is strictly forbidden should particularly give priority to environmental effect. We should remember the lesson in the construction of Egypt's Nasser reservoir which resulted in a large area of salinization. China's practice in conducting a careful environmental appraisal of the Three Gorge construction project is worth promoting.

2. When signing foreign economic contracts, in accordance with such rules and regulations as China's "environmental protection law" and "temporary provisions for the environmental control of open economic zones" we should carry out conscientious negotiations with

foreign investors and clarify in the form of agreement duties for both sides in regard to economic and technical measures for pollution prevention, the sharing of cost, and the methods of reward and punishment.

3. Through the development of production and the improvement of technical level, we should continue to improve the quality and grade of China's export commodities, develop in the direction of multiple and precision processing, and gradually reduce the exports of farm and mineral products. This can protect China's relatively scarce resources as well as increase the added value of export products and expand export and foreign exchange earnings. Eastern coast areas should adhere to the road of "both-ends abroad" and fully utilize overseas resources to solve the problem of scrambling with inland areas for raw materials.

4. Important tourist and nature protection areas should strengthen the protection of cultural and historical relics and animal and plant resources, strictly forbid the import of projects with serious pollution problems, and severely punish poachers of rare animals according to law.

5. Import and export commodities and people entering and exiting the country should go through strict animal, plant, and health quarantine procedures to prevent plant diseases, insect pests, and epidemic diseases from entering our country. As for those affected commodities and people already entered our country, customs and quarantine departments should promptly adopt control measures to prevent the spreading of diseases.

6. When we develop the export-oriented economy, we should pay attention to importing advanced environmental protection technology and equipment and learn from advanced foreign experience in environmental protection work to gradually raise the managerial level of China's environmental protection work.

7. Further efforts should be made to formulate and perfect environmental rules and regulations for foreign economic work, strengthen legal supervision over foreign economic work, and ensure that existing laws are observed and violations are investigated. Currently China's existing environmental rules and regulations concerning foreign nationals include "Environmental Law," "Temporary Provisions for the Environmental Control of Open Economic Zones," "China's Border Health and Quarantine Regulations," "Rules and Regulations for the Quarantine of Import and Export Animals and Plants," "Marine Environment Protection Law," and "Control Regulations for Preventing Boats and Ships From Polluting Waters." The implementation of these rules and regulations has played an important role in environmental protection. But along with the development of China's export-oriented economy, they still need to be further supplemented and perfected in the future.

INDONESIA

Official on Efforts To Preserve Tropical Forests

BK1805115990 Jakarta ANTARA in English 0956 GMT
18 May 90

[Text] Sanur, Bali, May 18 (OANA-ANTARA)—Indonesia, especially from the economic point of view, is very concerned about the future of its forests, the Indonesian delegation to the 8th International Tropical Timber Organization (ITTO) meeting has stated.

"That's why the country with around 180 million inhabitants equips itself with various laws and regulations to preserve its tropical forests," chairman of the Indonesian Forestry Society (MPI) and one of Indonesia's delegates to the meeting Mohamed Hasan said here Friday [18 May].

In a speech before representatives of 49 countries attending the ITTO meeting he further said that Indonesia will preserve the world's tropical forests by improving the living standard of its people and launching a campaign on the importance of environmental protection especially among those who depend a lot on forest products.

"We believe that we will be a part of the efforts to preserve the tropical forests rather than to ruin them further," he added.

According to Mohamed Hasan, also popularly known as "Bob" Hasan, around 2.5 million people are directly involved in the collection and processing of forest products, while 1.2 million others in the timber industry supporting sectors like transportation.

These 3.7 million workers together with their families total about 14 million people.

"This means, forestry industry in Indonesia is the source of living for 14 million people," he said.

Indonesia has decided that 79 percent of its forest land (143 million hectares) will be permanent forest.

The ITTO meeting, opened by President Suharto in Jakarta Wednesday, is scheduled to last until May 23 with several international institutions like the FAO [Food and Agriculture Organization] and WWF [World Wildlife Fund] acting as observers.

JAPAN

Ministry Proposes Elimination of Chlorofluorocarbons

OW1805114490 Tokyo KYODO in English 0851 GMT
18 May 90

[Text] Tokyo, May 18 (KYODO)—The Ministry of International Trade and Industry (MITI) has decided to propose a complete phase-out by 2000 of more chlorofluorocarbons (CFCs) and other ozone depleting substances, MITI sources said Friday.

New targets for 100 percent reductions are CFCs 13, 111, and 112 as well as carbon tetrachloride (CCl₄).

The ministry also plans to slash sharply methyl chloroform, which is used mainly as a wash at semiconductor plants.

In September 1987, 46 countries signed the Montreal protocol on substances that deplete the ozone layer.

The Montreal signatories agreed to limit the consumption and production of eight different chemicals—five "fully halogenated" CFCs, or CFCs 11, 12, 113, 114, and 115, as well as three halons.

CFCs were the object of criticism since they are known to destroy the ozone layer in the stratosphere. The layer serves as a shield against cancer-causing ultraviolet radiation from the sun.

The number of signatories to the Montreal protocol has since increased, and the U.S., the European Community, and Japan—the three largest CFC producers—have agreed to phase out the five CFCs altogether by the end of the century.

In Japan, the restrictions on production and use of these chemicals started in July 1989.

But environmentalists are still worried that continued CFC production and use will increase atmospheric loading of chloride by a significant amount, which could lead to further ozone depletion.

They are calling for the abolition of all ozone depleters as quickly as possible.

They also advocate the abolition of substances that deplete the ozone layer, but are not listed in the Montreal protocol, such as methyl chloroform and carbon tetrachloride.

The MITI move was as a response to the call for tougher restrictions on these ozone-damaging substances.

As major industrial nations have similar policies on curbing these chemicals, basic agreement among them is expected to be reached at the Montreal protocol meetings to be held in June in London.

Carbon tetrachloride, a raw material for CFCs, is the center of attention since it has a larger propensity for destroying the ozone layer than the five CFCs.

Japan produces about 60,000 metric tons of the chemical per year.

Annual production of methyl chloroform is some 160,000 tons.

Abolishing or sharply curtailing these substances requires the development of substitutes.

MITI plans to promote development of the substitutes and of the production technology that can make these substances obsolete, the sources said.

INTRABLOC AFFAIRS

Eastern Europe's Ecological Problems Summarized

90WN0036A Vienna PROFIL in German
9 Apr 90 pp 66-71

[Article by Robert Buchacher and Burt Czeitschner:
"People Would Scream All Day Long"]

[Text] Yellowish-gray fumes waft through northern Bohemia's little industrial town of Klasterec. The streets appear devoid of all life. The maximum permissible amount of sulfur dioxide in the ambient air has been exceeded by a factor of ten. A smog alarm has been introduced only recently; but the silent pollution damage has done its work for decades, with remote effects all the way into Austria.

In Vienna's Saint Stephen's Square, 350 km from Klasterec, the orange-colored indicators for sulfur dioxide and nitric oxide on an electronic air quality indicator are climbing into the "unsatisfactory" range. One-third of pollutant emissions affecting the greater Vienna area originate in Northern Bohemia and Upper Silesia.

Satellite photographs show the greatest pollution emission to occur in the GDR/Poland/CSFR border triangle for the entire continent. The power plant furnaces, stoked with substandard coal, spew millions of tons of poison into the skies, with no filtration whatsoever—as is the case everywhere in the former East bloc. Sulfur components and nitric oxides are transported over enormous distances in the atmosphere prior to settling in peoples' lungs and in the ground.

Every time an Austrian draws a breath, he inhales poisonous greetings from the East. Austria's forests are dying from local exhaust fumes just as much as from poison slingshots hundreds of kilometers distant from Austria.

In the Duchcov basin, near the northern Bohemian district town of Most, people see the sun only on rare occasions. The sky is so darkened by smoke, soot, and sulfur that at times of inversion, automobiles have their headlights on at high noon.

In Silesia, almost one out of every three people suffers from respiratory diseases. Tuberculosis, a disease which had been believed to be long since extinct, is raging as it did during the darkest days of the last century. A remarkably large number of children are born with severe genetic damage; some barely have the strength to breathe.

Apart from an economic disaster, real socialism has left in its wake an unimaginable environmental disaster. In the USSR, annual environmental damages already cost 10 percent of the national income; in Poland as much as

20 percent. A recent Hungarian government report estimates the cost of environment-related health care costs to be at least 6 billion Austrian schillings.

No other part of the world wastes as much energy as does Eastern Europe. The amount of energy streaming unused through the chimneys of the GDR, for instance, could supply all of Denmark. Pollutant emissions are of unimaginable size.

The GDR's Boxberg (near Cottbus) soft-coal power plant alone annually emits 460,000 tons of sulfur dioxide—as much as all of Austria, and more than all the power plants of Norway and Denmark combined.

Czechoslovakia sends out 3.37 million tons of SO₂ per year; more than two-thirds of this descends upon other countries. Austria's share is 22,000 tons of pure sulfur.

Every year, Poland produces 4.3 million tons of sulfur dioxide, equal to the capacity of 160,000 railroad freight cars. Almost 60 percent of this floats beyond the borders; 17,000 tons of it finds its way to far-off Austria in the form of pure sulfur.

Hungary has reduced its sulfur dioxide emissions by 25 percent since 1980; but at 1.3 million tons per year, this is still nine times the amount produced in Austria. Twenty-two thousand tons of sulfur out of this rains down on the alpine republic. About the same amount is coming across our border from Yugoslavia.

Yugoslav SO₂ emission, at 2.6 million tons per year, has more than doubled since 1980. Little Slovenia, the most progressive and by far the richest part of the republic, keeps its distance from the rest of the state in environmental concerns too. In contrast with Belgrade, the Ljubljana parliament has ratified the international agreements on pollution control. While initial measures have been implemented, electric power is slated to increase by another 26 percent by the year 2000. "If Slovenia really implements these plans for increase," estimates Markus Amann, a specialist on border-crossing air pollution at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg near Vienna, "Carinthia will become Austria's dirtiest province."

Slovenia's Greens are shaking their fists: "This will not happen; we are fighting it." Less waste and more efficient use of energy would be much more beneficial than new power plants.

The unrestrained construction of industrial and power plants without filtration systems, often in narrow valleys, plays havoc with the population's quality of life. More than one-fourth of Slovenia's people live in areas which are classified as uninhabitable by the air criteria of the World Health Organization (WHO).

During December of last year air pollution in Maribor stayed below international limits for only two days. Says pediatrician Kurt Kancler of the Maribor Institute for Health Protection: "If these diseases were painful, the people would be screaming all day long."

Preschool children of the most highly polluted Slovenian village of Trbovlje (40 km from the Austrian border as the crow flies) see the doctor for respiratory illnesses on the average ten times as often as do children in less polluted areas. Trbovlje also has by far the largest percentage of stillbirths in Slovenia. Infant mortality is twice the country's average.

The Greens of Slovenia say, of course: "In Bosnia and Kosovo things are still worse." In Bosnia's heavy industry center of Zenica, acceptable threshold values are on many days exceeded by a factor of ten.

In some parts of the CSFR the pollutant concentration of the ambient air exceeds permissible thresholds on at least 117 days per year. In Upper Silesia, the average daily threshold is exceeded by a factor of three. And the trend is still upward.

The truth is probably far more dramatic: Measuring instruments, when available at all, are the technological equivalent of a Trabant car. And the measurement data were state secrets for a long time.

When Geza Kecskemethy, a Budapest chemist and machine tool engineer, gave a report on Budapest radio five years ago about the dangers of the two-cycle engine, the censors terminated the broadcast. Anica Krasna, a worker in a capacitor factory in Semic, Slovenia, was excommunicated from the Communist Party as an "irresponsible element" because she published the data concerning her severe health impairment from PCB's. PCB's are the most potent toxins released in the production process and should be removed.

Kalman Abraham, director of the Budapest Institute for Environmental and Nature Protection, was disciplined only two years ago for "creating panic," when he tried to inform the city's population via an electronically illuminated letter board about air pollutants.

Czechoslovak opposition member Bedrich Moldan was incarcerated by the state police for "leaking" environmental data. Today he is the Czech Minister of the Environment.

Before today, air measurements in the East were taken only for sulfur dioxide, nitric oxide, carbon monoxide, and fly ash. Data about ozone damage were a Western luxury. But since the removal of the iron curtain, at least the general extent of environmental damage is gradually becoming public knowledge.

Slowly but surely the people in the Eastern industrial areas are finding out about the catastrophic conditions under which they were forced to live and work. In the meantime, poisonous installations continue to run at top speed—even without the Red Star quotas.

Tens of thousands of people were enticed to move into the Bohemian industrial area over the past 40 years by financial bonuses. Colloquially, this additional income is known as the "death premium."

Life expectancy in Ostrava, as in Prague, is 11 years below that for the country's average; in Teplice, 13.6 years less. Infant mortality in Poland and Hungary is double that in Austria; in Yugoslavia it is triple.

In the overall picture, people in the Eastern neighboring countries die five years earlier than do Austrians. Hungarians have the lowest statistical life expectancy at 69.7 years, with a still declining trend.

Hungary also has the largest percentage of cancer deaths worldwide. In Austria, 432 deaths per year out of every 100,000 are due to cancer; in Hungary the number is 539.

Northern Bohemia and Upper Silesia have similarly high percentages for respiratory and cardiac disease as for lung cancer. The number of colon and rectal cancer cases is also constantly increasing, due to poor nutrition.

Every pregnancy is considered risky for both mother and child from the fourth month on; the rate of premature births in the Czech industrial regions is, at 12 percent, double that of other parts of the country. Genetic changes, clearly environment-related, make for an increase in newborn deformities. In Poland's Chorzow, a suburb of Katowice, at least two hydrocephalic children are born every month. Others are born without abdominal muscles; severe heart defects are seen every day in the hospitals. In the center of town there is a huge steel mill, whose four smokestacks have been belching unfiltered pollutants for the last 35 years.

In the entire CSFR there is only a single power plant, in Tusimice, where for a short period a desulfurization unit was tested. The result was devastating—the Soviet product was unable to attain the desired result by a wide margin.

In Northern Bohemia about 10 percent of adolescents fail to reach average height. Many children are walking heavy metal repositories. In Upper Silesia's Miasteczko Slaskie, 30 km from Katowice, 10-year-old Elzbieta Mieczkowski holds a significant record—the girl's blood has the highest lead content ever measured in a human.

In Budapest's Martirok Utja, one of the city's main thoroughfares, the ambient air was found to contain 31 times the permissible threshold value for lead concentration. According to research conducted by the Budapest Institute for the People's Health, this has caused the childrens' IQ to drop by an average of five points.

In Szazhalombatta, 30 km southwest of Budapest, twice as many fetuses die between the largest refinery and the largest heating power plant of the country as do in the average for the country—probably because of great heavy metal concentrations in the ambient air.

In Budapest's 7th District the average life expectancy for men is lower by five years on average than it is in the "good" districts, mainly "due to air pollution," says Ilona Farkas of the Budapest Oncology Institute. Zoltan

Illes, Director of the Budapest Institute for Environmental Management, believes that in Hungary "there is no longer any clean air area." There are now six times as many respiratory illness cases as there were 15 years ago. One out of every 17 Hungarians dies of the effects of air pollution.

One of the symbols for Eastern air pollution is the stinking "Trabi" [Trabant car]. In the GDR 3.5 million of the two-cycle engine cars are smoking their way through the streets; in Hungary there are 600,000, one-third of the largely obsolete automobile inventory. A Trabant pollutes the air 100 times as much with carbon monoxide as does a Western catalyst car.

Budapest researcher Geza Kecskemethy calls the two-cycle engine "the most dangerous of all engines." According to factory data, a Trabi uses 18 percent more gasoline, a Wartburg even 26 percent more, than a comparable four-cycle engine car—and 20 times the amount of oil.

Contrary to the thrifty East Germans, Hungarians have wasteful tendencies and add more than the recommended amount of oil to the gasoline. The Hungarian Automobile Club states that fewer than 10 percent of all engines are tuned properly.

"The thing that stinks so much," says Kecskemethy furiously, "is formaldehyde; it destroys human cells. And benzopyrene is one of the most aggressive carcinogens. Those poor Hungarian kids who inhale these exhaust fumes will all get lung cancer."

While Czechoslovakia stopped importing cars with two-cycle engines as long ago as 1984, Hungary continued importing between 60,000 and 80,000 of the GDR stinkers per year. While the government promised in 1985 to discontinue these imports because the GDR had failed to change over to four-cycle engines, 20,000 Trabants are still being imported this year. Only the Wartburg has been available with Golf engines since last year.

Kecskemethy is convinced that "the key people were bribed by the GDR." It is a fact that several ministers of the Communist Party era had received Trabis and Wartburgs as presents. Former Hungarian Defense Minister Lajos Czinege, for example, who is presently the subject of a parliamentary investigation, accepted a hunting Trabant as a gift from the GDR.

Here is the bottom line for the socialist "accomplishment": Instead of the creation of a new mankind—corruption; instead of modernization—hopelessly obsolete technology; instead of great performance—low efficiency; instead of affluence for all—shrinking incomes; instead of Marxist ecology in production—an unprecedented ecological disaster.

Karl Marx had called for the "reduction of production refuse to a minimum" and thought about "the reuse of production refuse"—in other words, recycling. In actual socialism, his thoughts ended up on the garbage heap.

For many decades, highly toxic garbage was dumped any old place. In Hungary, there was an accidental discovery of 500 barrels containing poisons which had been buried in the Apajpuszta National Park. Ground water, plants, and animals were contaminated.

Gigantic toxic garbage deposits were suspected to be located in the Slovenian Karst. In Semic, 26 km south of Novo Mesto, toxic garbage dumps of that sort caused one of the world's greatest PCB contaminations.

In Hradec Kralove, Czechoslovakia, activists of the Citizens' Forum found hundreds of barrels containing highly toxic substances in an abandoned bunker.

In a field outside of Bohemia's Litvinov a very special kind of bomb is ticking away—here tens of thousands of tons of dangerous toxic refuse from the nearby petrochemical giant had simply been dumped for many years. Poisonous contents are routinely found in the groundwater, compared to which the problems of the Mitterndorf valley would seem harmless.

"It is incredible what communism has done to people and countries," complains Dusan Plut, geography professor at Ljubljana University and head of the Slovenian Green Party.

Prague's environmental protector Pavel Trpak expresses it even more dramatically: "The communist dictators conducted chemical warfare against us." Even Polish governmental reports admit that Upper Silesia is a region containing "a direct threat to human life."

Apart from the traditional air pollutants, the following are released every year in Czechoslovakia: 123,000 tons of lead; 80,000 tons of zinc; 48,000 tons of mercury; 18,900 tons of chrome; 16,000 tons of nickel; 15,500 tons of copper; 4,300 tons of arsenic, and 1,300 tons of cadmium.

From the air these toxic materials enter the soil, which is already severely damaged from the type of agricultural use to which it is subjected. Agricultural collectivization combined millions of small fields (average size: one-quarter hectare) into enormous tillage fields. In the CSFR for instance, this caused about 1.5 million people to leave their villages and move to the cities.

Heavy agricultural machinery, along with erosion caused by water and wind, annually destroy millions of tons of topsoil, causing a loss of valuable nutrients. The rock content of the fields is increasing dramatically; the natural soil microorganisms have almost disappeared.

The use of nitrogen-containing fertilizers has increased by 210 percent in the past few years, while the wheat harvest has grown by only 150 percent.

Carrots from Czechoslovakia are unsuitable as food for children because of their toxic concentration. The "gardens of Bohemia," the location of practically half of all the fruit trees in the CSFR, are in the immediate vicinity of the power plant areas near Most. In Upper Silesia

private vegetable gardening is prohibited because the soil contains too much lead, zinc, and cadmium.

Northern Bohemia has turned into a disaster area because of its coal deposits. Poor quality soft coal is almost the sole source of energy. Almost 90 percent of all households use coal for heating. Home heating complements the destructive effects of the industrial facilities.

Krakow's architectural treasures which survived the war are increasingly being destroyed by the polluted air.

Medieval buildings in Kadan, six km from Klasterec, have been almost completely destroyed. Rather than rehabilitating residential buildings, the Stalinists built at the edge of town one of the many faceless prefabricated settlements. All new apartments have connections for gas—only the gas is missing.

There is a lack of technology, know-how, and, of course, money to rescue that which can still be saved. In Upper Silesia, as well as in Northern Bohemia, there is therefore much talk about "joint ventures." Since the ouster of the communists, cars bearing Linz license plates can regularly be seen outside the administration building of the Litvinov petrochemical works. VOEST engineers are supposed to detoxify this monstrous stinkpot. The question of how all of this is to be financed is greeted with shoulder shrugging by the Citizens' Forum people.

Bedrich Moldan, the Czechoslovakian minister of the environment, cannot add anything else: "We need billions of crowns to clean up Northern Bohemia. It will take years; we cannot perform any miracles."

Inside the former Katowice city hall, Polish Minister of the Environment Bronislaw Kaminski implores representatives of the heavy industry combines: "The most dangerous of the factories must be closed down." The minister from Warsaw comes close to being laughed at by the combine directors.

In Upper Silesia there are no more butterflies; in Northern Bohemia two-thirds of the forests are defoliated. By 1995 every tree will have been killed by acid rain. Apart from the Erz Mountains, the Riesen Mountains are also covered by tree skeletons and prairie grass—a sure sign for the impending extinction of the trees.

But one does not have to go to the Erz Mountains to come across a dead forest. Just across the Austrian frontier, 15 km from Bleiburg, nature has given up in Slovenia. The last trees are dying in the Mezica Valley, which even the most recent government report refers to as "Death Valley."

In Slovenia, ground water, rivers, and lakes are as polluted organically as if 12 million people were living there, rather than 2 million. In Hungary, 600 villages do not have safe drinking water. Anyone drinking tap water in Upper Silesia can count on nausea, diarrhea, and vomiting.

In Czechoslovakia, seven out of the eight major rivers are ecologically dead. On Czechoslovakian territory in 1986,

the river Elbe received an influx of 49,000 tons of organic pollutants, as well as 65,100 tons of inorganic pollutants. In addition, there were 310,000 tons of petroleum, 482,000 tons of inorganic salts, and 665,000 tons of alkaline substances. No living organism survives in that sewer.

A tributary of the Oder flows through the Upper Silesian town of Gliwice. Its content has little relation to H₂O—more than 60 percent of the "river water" consists of toxic effluents from the local chemical combine which is located in the center of the town.

Only one-half of all Czechoslovakian drinking water wells are suitable for human consumption. Four hundred of the more than 2,000 chemical compounds found in the water have "significant health impacts, even in trace quantities." Ninety percent of home wells are poisonous.

Despite the catastrophic Stalinist heritage, Czechoslovakian Minister of the Environment Bedrich Moldan sees a possible way out: "We urgently need help from other countries."

Bronislaw Kaminski is already the third minister of the environment in Poland's Mazowiecki government. In view of the insurmountable problems, his two predecessors shortly threw in the towel. Kaminski is full of resolve: "The time for action is at hand. I am not afraid to take unpopular measures. The people in the health-endangered regions will understand me." And he has faith in international cooperation.

The early 1980's saw a joint effort for the improvement of the environmental situation in Western Europe. Under the aegis of the UN's European Commission for the Environment (UN-ECE) an agreement was reached for a voluntary obligation by the states to reduce their sulfur dioxide emissions by at least 30 percent. The schedule for this project expires in three years.

This agreement was signed by 21 states, including the GDR and the CSFR. No effective measures have been taken to date in these two countries. The Polish minister of the environment could become active in this immediately: His country has not joined in this voluntary effort for pollutant reduction to date. Neither have Romania, Yugoslavia, Portugal, and Greece.

Austria has by now reduced its SO₂ emissions by 70 percent and is considered a role model state for effective environmental protection measures in this area. Nevertheless, the Austrian sulfur dioxide load will probably decrease by only 40 percent—"mostly as a result of the hesitant measures taken in the Northern Bohemian industrial area," says IIASA expert Markus Amann.

To protect Austria's forests against even more severe damage would primarily require a drastic reduction in sulfur dioxide emissions in Northern Bohemia.

By merely complying with official energy plans, SO₂ emissions in the CSFR and the GDR could be reduced by 65 percent; in Poland's Upper Silesia, they could at

least be cut in half. Conversion of coal-heated apartments to central heating and natural gas would lead to further improvement.

The cost of removing sulfur from power plant exhaust fumes would be 26 billion schillings each for the CSFR and the GDR, and 40 billion for Poland. The IIASA's computer model figures a cost of 180 billion schillings for converting household heating to natural gas.

The total sum—about 300 billion Austrian schillings—should be manageable throughout Europe, because Western help in cleaning up the Eastern environment would benefit the West. Every schilling spent to purify the environment in the East would be a better investment than spending it at home.

Even more up-to-date control instruments in the power plants or a set of penalties which would make the current waste of energy in the East financially painful, would have a considerable impact, on the environmental situation in Austria as well.

Air Pollution, Health Problems in Upper Silesia Profiled

90WN0036B Vienna PROFIL in German
9 Apr 90 pp 72-75

[Article by Burgl Czeitschner: "Dreary Black"—first paragraph is PROFIL introduction]

[Text] In the Upper Silesian industrial area the environment is a public danger. Gigantic poison cauldrons are destroying the land and the people.

Two deformed trees, a concrete-covered soccer field full of holes, a swing. This is the recreation center of Tarnowskie Gory, a small town in southeast Poland, in Upper Silesia. Five children are greatly excited to find a tuft of grass. Something with a delicate shade of green—a sensation for the little ones, like the first snow in this country.

The children of Tarnowskie Gory know only black soil. Their playground is in the shadow of huge smokestacks, from which fly ash, sulfur dioxide, and other pollutants have been raining down on them for decades.

The Upper Silesian industrial area is half the size of the Ruhr, with 3,000 plants jammed into it—among them 18 iron and steel mills, seven non-ferrous metal plants, eight major industrial plants, 40 industrial power plants, 30 chemical plants, 80 machine tool works, 60 coal mines, and all the lead and zinc mines of the country.

In Zabrze, Upper Silesia's filthiest town, a truck parks at the market square. A line of people starts up as if by command. Even since democracy returned to Poland, the black market has still flourished. A farmer from Kluczbork, situated outside of Upper Silesia, is selling chickens, eggs, and bread. He need no longer worry about the police. On the contrary: The new government promotes free enterprise. His wares are cheaper and

better than those in the supermarket next door. The people of Zabrze buy everything he has to sell.

At that moment, 14-year old Barbara from Bytom is being pushed into the operating room of the Zabrze hospital. She is forced to live in a town where the threshold value for sulfur dioxide is exceeded by a factor of three, day after day. Ever since she was born, she has inhaled massive quantities of lead, zinc, cadmium, and nitric oxide with every breath. Her larynx is unable to cope with it.

Every other child here is particularly vulnerable to disease—especially of the respiratory system. Anemia is counted among the more harmless defects. Birth defects are four times as prevalent as in the rest of the country.

Katowice, 1400 hours. Change of shifts in the largest coal mine of the area. Prior to riding the elevator down, the miners cross themselves. In Upper Silesia there are four times the number of occupational accidents as in the rest of Poland. Thirty-four-year-old Tadeusz was almost killed by a support beam; he was in a plaster cast for three months. At the end of his shift he looks like an old man; at the end of the month he finds about 1,200 schillings in his pay envelope.

In Chorzow the streetcar passes right next to the steel mill. Four gigantic smokestacks have been spewing their filth into the air forever without benefit of filtration. During periods of inversion, ghostlike, poisonous clouds float through the town. At those times people cough even more than usual.

Three boys are squatting behind a black shrub, smoking one cigarette among them. There are few people who do not smoke around here. In the pub, 48-year old Jacek tears open his second pack of cigarettes: "Makes no difference anyway." He has lung cancer, not just from smoking. Two months ago the former steelworker was sent into early retirement after 34 years on the job.

BULGARIA

Lukanov Meets Industrial Pollution Protesters

AU1005083090 Sofia BTA in English
0734 GMT 10 May 90

[Text] Sofia, May 10 (BTA)—Yesterday a market for lead [as received] lettuces, radishes, green onions and cherries from the region of the Nonferrous Metals Combined Works "Dimitur Blagoev" near Plovdiv was organized before the Council of Ministers building. This was in relation with the expiration of the term (April 30) after which the government had to give its standpoint about the future fate of this combined works which pollutes the environment in the Thracian field between the cities of Plovdiv and Asenovgrad.

The protesters raised slogans with "Mr. President, Stop the Nonferrous Metals Combined Works," "Bulgaria, As Small As a Human Palm, Is Poisoned After a Plan,"

"Come Here, People, for Fresh Lead Vegetables. Price: 0.00." There were also red banners.

Data about lead and cadmium found in 146 children after medical tests began were published on a large poster.

When voices began to be heard that "those from the above are afraid to show and that the premier enters and leaves from the back entrance of the Council of Ministers," Andrey Lukanov showed up and tried to calm down spirits with the opinion that the works has to be closed down. The only thing is that terms should be specified, he said. We will discuss the proposal to cut down these terms [deadlines] and on Saturday, May 12 we will talk again, Andrey Lukanov said.

Legal Proceedings Against Government for Building Cellulose Plant

*AU1905165690 Sofia BTA in English 1547 GMT
19 May 90*

[Text] Sofia, May 19 (BTA)—The Supreme Court of Bulgaria has instituted legal proceedings against the Council of Ministers and served a summons on the Ecoglasnost Independent Society in Silistra (on the Danube) to appear as litigant in court. The Silistra ecologists lodged a claim with the Supreme Court insisting on the revocation of the decision of the Council of Ministers in connection with the building of a cellulose plant as an extension of the local technological forestry and industrial combined works. The summons was filed under No. 1, which shows that the trial will be the first one of this kind.

CZECHOSLOVAKIA

Green Party Broadcasts Political Program

LD1505104790

[Editorial Report] Prague Domestic Service in Czech at 0415 GMT on 15 May carries a five-minute broadcast on behalf of the Green Party. Miroslav Kulhavy, chairman of the party's organization in Prague and vice chairman of the Czech territory organization, defines, among other things, the party's relationship with other parties and movements. He says that the party has finally succeeded, although relatively late, in convincing the coordinating center of the Civic Forum that the party really came into existence in order to protect the environment. He says that the Civic Forum finally came to understand that it was not a communists' Fifth Column, as they called it, but rather a strong political party, with a certain program for which it wants to fight. The party has not concluded any preelection or post-election coalition agreement. It has merely signed a code of ethics on conduct during the election campaign with the Civic Forum, Kulhavy continues, and have given instructions to local organizations to cooperate closely. The party has signed the same ethical conduct code, he says, with the Socialist Party and with the Social Democrats. As for the Communist

Party, the idea of any cooperation with it is impermissible to the Green Party as long the Communist Party is what it is, Kulhavy stresses. In any case, the Communist Party is not acceptable to the Greens, because by simply looking around one can see the consequences of what communists have done during the 40 years of their rule, he says.

Kulhavy continues to say that the Green Party represents a political force that strives for democracy in order to tackle ecological and other problems. It advocates the transition to a market economy as a source of revenue which will enable the financing of remedial environmental measures, he says. The party wants to open the country's door to the world, without whose help the country will hardly be able to overcome its backwardness, including that involved in the production of ecological technologies, Kulhavy concludes.

Christian Democratic Movement Pro-Environment

*LD1105225190 Prague Domestic Service in Slovak
2005 GMT 11 May 90*

[Excerpts] In the past, Slovakia ranked among the most well-preserved countries in Europe. This was because Slovaks have developed from ancient times not only a Christian and humanistic attitude toward other nations, but also to nature, their provider. The Christian Democratic Movement proceeds from these traditions and is guided by the principle that what is not ecological is uneconomical and immoral. [passage omitted]

The Christian Democratic Movement has pledged in its election program to work for the elimination of all sources of pollution. In extreme cases it will demand either a temporary or permanent halting of activities which devalue the environment and have a negative impact on citizens' health. The Christian Democratic Movement will promote the principle that the population's health must be the prime objective, even at the cost of lower yields. It will support measures to cut sources of emissions that damage forests, which are our most important natural treasure. In its election program the Christian Democratic Movement emphasizes concern about the protection of the countryside and land as the basic condition for a healthy environment and food.

Slovak Government Reviews Environmental Situation

*LD1605220190 Bratislava Domestic Service in Slovak
1630 GMT 16 May 90*

[Excerpts] The Government of the Slovak Socialist Republic met in Bratislava today [16 May]. The agenda contained a number of points concerning the environment, several legislative proposals, as well as other issues. The government's discussions as well as the afternoon news conference was attended by editor Jan Smihula, whom I asked for a brief summary:

[Begin Smihula recording] Today's session of the Slovak Government can be termed ecological, for the simple reason that one-third of the more than 23-point program concerned the creation and protection of the environment. These issues were discussed, above all, at the afternoon news conference in the office of the government, but the reports were not very pleasant. For example, of the water samples taken at Zitny Island, 92 percent did not comply with the norm for drinking water. The samples were taken at a depth of over 50 meters—and we are talking about the largest reservoir of drinking water in our country. That is why, this year in Slovakia, the validity of 185 exceptions for allowing waste water into surface streams is coming to an end, according to Ivan Vesely, minister of forestry, water conservancy, and timber industry. [passage omitted on priority of ecology over economic results; interview with Kornelia Risova, deputy chairperson of the Slovak Commission for the Environment, on ecology in Ruzomberok]

Slovak Official Complains of Environmental Devastation

LD2305050690 Prague CTK in English 1958 GMT 22 May 90

[Text] Bratislava, May 22 (CTK)—First Deputy Chairman of the Slovak National Council and Chairman of its Committee for Environmental Protection Jan Budaj announced at its 27th meeting here Tuesday [that] he has lodged a complaint to the Slovak general prosecution against unidentified offenders responsible for the environmental devastation.

He said that people who executed responsible functions had endangered the citizens with various forms of environmental devastation.

Jan Budaj told CTK that the people responsible for the current terrible state of the environment seem to be laughing the rest of society to scorn. If anybody expected their public apology, he was mistaken. "That is why I have decided to lodge a complaint to the general prosecution", Jan Budaj told CTK.

He was one of the group of Slovak environmental protectionists who published the book "Bratislava Aloud" in 1988, depicting the state of the environment in the Slovak capital.

USSR No Longer Responsible for Nuclear Safety

LD1005162690 Prague CTK in English 1539 GMT 10 May 90

[Text] Prague, May 10 (CTK)—There were eight breakdowns causing unplanned stoppages at the eight nuclear units operated in Czechoslovakia in the past year (one for each unit on the average), a rate among the best in the world.

Of the total of the breakdowns in Czechoslovakia, one per cent was of safety hazard.

The state supervision body has been paying special attention to the two oldest units of the "VI" type at Jaslovske Bohunice, West Slovakia. Their projected nuclear safety is lagging behind the standards required now, so they are considered the weakest spot of Czechoslovakia's nuclear industry. Most probably, these units will be removed from operation before their planned time.

Czechoslovakia has decided to take over responsibility for its nuclear industry's safety from the Soviet suppliers. This change will also influence the selection of future suppliers, where the Soviets will be just one of the bidding firms.

Czech Environment Minister on Soviet Troop Damage

LD0805135290 Prague CTK in English 1252 GMT 8 May 90

[Text] Prague, May 8 (CTK)—Czech Minister for the Environment Bedrich Moldan told journalists here today that the ecological situation at places left by the Soviet troops is incredibly bad. Forests are devastated and soil and underground waters are contaminated.

The Soviet troops that were stationed in the Czech Republic at about 150 places have already left 46. The deserted barracks and training sites are examined by Czechoslovak experts on environmental protection.

It is obvious that Soviet troops treat, for instance, oil products extremely irresponsibly and negligently. The storing of fuels does not correspond with the Czechoslovak norms and the Soviet troops do not take at all ecological security into consideration.

Waste dumps that have not been permitted by the Czechoslovak side contained unknown chemicals and are not safeguarded. At some places, the Soviet troops covered up the dumps, which means that Czechoslovak experts must now look for them, find out the extent of contamination and decontaminate them.

Soviet Troop Commission Notes Sliac Contamination

LD1105161690 Prague Domestic Service in Czech 1030 GMT 11 May 90

[Text] Although parliament ended its work in the election period on Wednesday [9 May], its commission for the supervision of Soviet troop withdrawal from Czechoslovakia continues its work. Lubos Lidicky sent this telephone despatch on its itinerant session in Slovakia.

[Begin Lidicky recording] Sliac, the spa town, is another place that is washing the khaki coloring from itself. Of 19 units deployed on the territory of Central Slovak region, already four have crossed the eastern borders of our Republic. Others should depart by the end of the year. This is a more pleasant finding for the deputies' commission.

The darkest aspect of Soviet troops' stay in our country, and in particular in Sliac, is the bad treatment of the facilities entrusted to them, of housing stock, and mainly of nature. Already in 1981 an accident involving petroleum-based agents was recorded here. From exploration wells—and there were 285 of them—286,000 liters of petroleum-based agents were pumped out. Just today alone, another 5 liters have been collected. One hundred thousand cubic meters of soil have been contaminated. The airport is located on impervious clays, and oil agents there have to be extracted from the strata below. Thanks to the timely intervention of our Army and specialists, the curative springs here in Sliac have not been damaged. The parliamentary commission will also visit Poprad and Kezmarok today. [end recording]

GERMAN DEMOCRATIC REPUBLIC

Environment Minister on Ecology Cleanup Cost

90GE0065A Duesseldorf VDI NACHRICHTEN
in German 2 Mar 90 p 4

[Interview with GDR Environment Minister Peter Diederich by Richard Sietmann; date and place not given: "I've Got a Hard Nut to Crack"—The Cost of the Ecological Cleanup of the GDR Is Estimated at DM200 Billion"—first paragraph is VDI NACHRICHTEN introduction]

[Text] Berlin, 2 March (VDI-N)—Air that irritates the respiratory tract, rivers from which drinking water can hardly still be won, and a soil which scoffers claim is just one big inherited debt: the legacy that Peter Diederich took over in January as the new GDR environment minister weighs heavily upon him. He is facing a real problem.

[Sietmann] Minister Diederich, is the GDR facing an economic collapse?

[Diederich] Not a collapse, but a very critical situation exists in the various parts of our land.

[Sietmann] The situation is serious but not hopeless?

[Diederich] As minister for environmental protection and water management, I have a tough job ahead of me, but I don't perceive it as hopeless.

[Sietmann] The environmental expert of the SPD [Social Democratic Party] in the lower house of the Bundestag, Harald Schaefer, has placed the cost of cleaning up the ecology to the level of the FRG at DM200 billion. Can you confirm this figure?

[Diederich] You know, very large sums of money are currently being tossed around in the discussions, they go first from 50 billion up to 100 billion and from there to 200 billion. We haven't come up with a bottom-line figure yet. In any case, the long-term cleanup will cost a lot of money.

[Sietmann] What budgetary resources do you have at your disposal?

[Diederich] The ministry itself has no funds to make repairs or to intervene in industry with the appropriate preventive actions. We are going on the assumption that whoever causes the environmental burdens must finance the costs himself.

[Sietmann] But that approach has not even worked in the past.

[Diederich] We have statistics for the environmental protection expenditures by industry, cities, and communities, and according to these the figure equates to approximately 0.4 percent of the gross national product. In the industrialized nations of Western Europe, the figure is approximately 1.0 percent. Here one must keep in mind that in our case these expenditures are mainly for equipment added afterwards—wastewater purification plants, desulfurizers, dust suppression equipment. In the future, we will above all make an effort, to a much greater extent than in the past, to link environmental protection with structural changes in the national economy.

[Sietmann] When you took over your office, you announced that an overall ecological plan would be released by your ministry at the end of March. Has this been changed by the fact that the date of the election was moved up?

[Diederich] No, we will submit it to the government still before 18 March. In it we plan to set forth guidelines which become necessary as we turn to the socially and ecologically oriented market economy.

[Sietmann] When one looks at the environmental catastrophe areas of the GDR, it becomes obvious that these are at the same time the locations of the chemical industry. How many plant closings will now have to follow as part of the structural program?

[Diederich] We have decided on initial measures for reducing the environmental stress in metallurgical plants and in the potash industry. The Council of Ministers has made additional decisions in the chemical industry sector—affected here, particularly, is the cord silk production at the chemical plant in Pirna. But we have no desire to wipe out everything, and we do not want to deindustrialize the GDR.

[Sietmann] Imports of waste products made headlines immediately upon your taking office. Are you the number one garbageman of the nation?

[Diederich] I don't see it quite that way. The "garbage tourism" exists within the framework of international work-sharing, and a distinction must definitely be made whether we are dealing with ordinary household garbage or with industrial waste products. We see our task at the ministry as threefold: First, to examine the waste products to be deposited; secondly, to participate actively in projects and methods aimed at the elimination of waste

products; and thirdly, the overall control activity at the waste product storage facilities, especially as far as the impact on the ground water and soil is concerned.

[Sietmann] What quantities did the GDR import?

[Diederich] In the past, we accepted 4.5 million tons of waste materials each year from West Berlin—for the most part household garbage, waste products generated by trades and small businesses, rubbish, and excavated earth—plus a maximum of approximately 40,000 tons of special wastes. Another 1 million tons of ordinary waste products and 25,000 tons of special wastes came from the FRG. Excluded were poisons of class I and II of the toxin law, as well as radioactive, flammable, or explosive materials.

[Sietmann] But this has not prevented the contamination of the ground water at the landfill at Vorketzin by organic halogen compounds.

[Diederich] As far as the landfills at Schoeneiche and Vorketzin are concerned, which meanwhile have become almost internationally known, we, as the supreme environmental agency, rescinded the agreement granted in 1974 and called upon the commercial partners to come up with contractual solutions. Vorketzin and Schoeneiche have not accepted any waste products from the West since January.

[Sietmann] What else will be done?

[Diederich] The closing took place on very short notice. Now an expert opinion on the condition of the facility will be obtained, based on which a cleanup project will follow in order to insure its lasting safety.

[Sietmann] The cleanup costs are estimated at approximately DM1 billion.

"It Is Nice To See the First Signs of Success"

[Diederich] That does not alarm me, since—regardless how high the costs are—we must proceed here on the basis of the cause principle. In the case of Vorketzin, we enjoy one advantage compared to many other burdens that we have inherited: Here we are still able to call in the causes of the problem, viz. the two commercial partners of the business dealings.

[Sietmann] But, after all is said and done, the strategy continues to be to finance the environmental elimination and cleanup costs with the money taken in from the waste product imports.

[Diederich] I do not in any fashion want to link the money thus taken in with the financing of environmental plans in our land.

[Sietmann] Do you see a realistic strategy for the avoidance of wastes?

[Diederich] Yes, one must use an environmental compatibility test as a point of departure: Technologies must

be tested to determine in what way they are linked to waste products that harm the environment.

[Sietmann] The environment minister in West Berlin is locked in a desperate struggle for the avoidance of waste products, and it doesn't look as if she is going to win.

[Diederich] The problem probably has to be tackled by means of financial restrictions, and by means of an appropriately high environmental or ecological tax, so that the producers of wastes are constrained right from the start to come up with a solution on their own.

[Sietmann] The environmental report which your ministry submitted at the negotiating table as material for discussion is anonymous, as it were—it gives no author, writer, or publisher, and it does not even contain a preface by the minister. Did you not want to be the messenger who also gets hanged because of the bad news that he conveys?

[Diederich] That is a matter of form. The publisher is the Ministry for Environmental Protection and water management. This is the first time that a report such as this is being released for public discussion, a report that very mercilessly characterizes the situation.

[Sietmann] Do you expect to continue to head this ministry after the elections on 18 March as well?

[Diederich] I can't tell you that today. It is an activity, at any rate, which is associated not only with a lot of work but also with very much enjoyment when the first indications of success become visible—in dealing with problems which were negligently glossed over in this land for years and in some cases for decades.

[Caption for photo not reproduced] Peter Diederich, 52 years old, is a graduate agriculturist and a member of the Democratic Peasants Party. In late January, as one of his first official acts, he put a stop to the depositing of Western special waste products in the landfill in Vorketzin near Berlin.

Sources of Severe Water Pollution Identified

90WN0014A Duesseldorf VDI NACHRICHTEN
in German 2 Mar 90 pp 5

[Article by Christa Friedl: "When it Came to Water Treatment, Plans Always Went Unfulfilled; The FRG Promises to Assist in the Modernization of Six Water Treatment Plants"—first paragraph is VDI NACHRICHTEN introduction]

[Text] Leipzig/Zwickau, March 2—Information on the water quality of East Germany's rivers and lakes seeps only rarely to the surface. An exception were Western press reports that bestowed the sad notoriety on the Elbe River of being Europe's dirtiest river. Statistics show just how far the GDR has to go to bring its water treatment up to date: Only three out of 10 inhabitants have access

to public waste water treatment, and the few existing industrial water treatment plants hardly deserve this description.

"For centuries people have lived with the river. They were thankful for its bounty and respectful of its strength." This was said of the Pleisse River located between Zwickau and Leipzig. In the summer of 1989, the Christian Working Group Global Environment (AKW) drew the sad conclusion that "All that's left now are memories and pollution."

The river is an open sewer. The Espenhain power station burns brown coal and discharges every hour 16 kg of carbolic acid and 800 kg of ammonia into the river. Numerous textile and chemical plants add chlorinated hydrocarbons, heavy metals, and acids. The coking plant in Boehlen tops it all off with its discharge of foul-smelling hydrosulphides.

Espenhain and Boehlen did not have water treatment facilities until the early 1980's. The goal in 1982 was to improve the water quality from grade IV (low oxygen, most organisms dead, strong formation of bacteria and algae) to grade II (oxygen content is at 50 percent of saturation and a greater variety of organisms). In 1985, after an expense of almost DM 300 million, this goal remained as elusive as before.

Here are some of the reasons: The facilities were conceived on too small a scale. After heavy rains, two-thirds of the waste water simply runs off. The biological climate was overtaxed from the beginning; the high level of toxic materials routinely killed off the bacteria. AKW asked the crucial "whether it makes sense to build expensive water treatment facilities for out-dated industries."

Other rivers have met with a similar fate. Some 40 percent of the GDR's rivers and lakes are polluted beyond repair. In highly populated areas, water gets circulated up to 13 times before it runs off as largely untreated waste water.

On another note: This morning about 15 young men and women are meeting on the Muelsengrund, not far from Zwickau. Innocent looking pastures stretch in every direction, but according to Andreas Trautmann, founder of the new ecology forum, "the liquid waste of 15,000 animals is dumped on these pastures until it saturates the ground several centimeters deep." To add insult to injury, farmers spread nitrogen fertilizer, "because the plan calls for it."

As a result, the drinking water from a near-by well has nitrate values up to 100 milligrams per liter, twice the amount allowed by law. Some 80 percent of the GDR's drinking water comes from ground water because surface water is much too polluted—only 17 percent of the water from major rivers can be used as drinking water, and then only after adequate treatment.

Liquid animal manure is not the only pollutant in Muelsengrund. Only two kilometers away loom the towering dumping grounds of Wismut Crossen, the last uranium enrichment plant the Soviets built on East German soil. Environmental protectionists fear that arsenic, bismuth, and radio active uranium will seep into the groundwater.

Socialist planning never paid much attention to water treatment and water conservation, even though the GDR has the most critical water economy of all industrial nations. The GDR has an available capacity of between 7 to 10 billion cubic meters of water each year. In dry years this allotment is nearly depleted (the FRG in comparison exhausts only 15 percent, Czechoslovakia 11 percent, and the Soviet Union two percent of its reserves). A major offender is an industry whose backward production technology never worried about water use. In the GDR it takes 50,000 liters of water to produce one ton of steel and 2.5 million liters to produce a ton of synthetic fibre. A 1,000 megawatt thermal power station made in the GDR "swallows" 2 million cubic meters a day.

The population too has been using water as if there was no tomorrow. The GDR's per capita consumption of 300 liters per day is twice that of the Federal Republic's, and it is rising because water is as good as free. A cubic meter costs as little as 45 pfennigs, although the real cost to provide households with water is 10 times as high. This discrepancy is even more glaring in newly built housing areas. The price for warm water use is included in the rent at 10 pfennigs per square meter, independent of actual water use.

According to official records, 67 percent of all households in the GDR are connected to the sewer system—a sewer system quite unlike the central sewage system in the West. Newly built housing developments have septic tanks, and once a year the city cleans the tanks and hauls off the sludge. Each third inhabitant; however, lives in an old building where people still "cross the yard to the out-house," as an old lady from Zwickau put it. The countryside has minimal access to this city type services. According to statistics, only 3.5 percent of those living in communities under 2,000 inhabitants are connected to a sewer system.

Only about half of all the waste water collected gets channelled into sewage treatment facilities. Zwickau is a good example of a typical waste water treatment facility in the GDR. The waste water of 100,000 inhabitants runs into four big basins located at the edge of town. Eventually, the sludge simply settles to the bottom. There is no biological or chemical purification stage and no preparatory treatment because nobody knows how to install a new bar rake.

Until recently the installation of additional waste water treatment facilities was progressing nicely. By 1990, an additional 400,000 inhabitants were to profit from additional or improved water treatment facilities. The only

way this can be achieved now is with financial help from the Federal Republic. Six of eleven projects that the two German ministers for the environment discussed at the end of last year, concern the building and modernization of waste water treatment plants in the towns of Dresden, Halle, Schoenbeck, Dessau, Berlin, and Magdeburg.

There is good news about the Elbe River: Minister for the Environment Klaus Toepfer said the other day that a DM200 million shot in the arm will free the dirtiest river in Europe of 870 tons of phosphates, 12,000 tons nitrogen, 320 tons nitro-aromatic compounds, 435 tons phenolic acids, 22 tons cyanide, and 25 tons chrome—a first clean drop into the GDR's water system.

[Caption for photo not reproduced] The Pleisse River between Zwickau and Leipzig is an open sewer. A mere 15 km from its source, the little town of Crimmitschau provides the kiss of death. Nearby textile plants color the water red or green and the leather industry saturates its waters with tannic acids; surfactants cover the river with foam. Voices protesting the discharge of filthy waste water into the river are growing louder and louder.

HUNGARY

Environmental Minister-Designate on Ministry Tasks

AU2505090590 Budapest MAGYAR HIRLAP in Hungarian 19 May 90 p 3

[Interview with Environmental Protection Minister-Designate Sandor K. Keresztes by Attila Vodros; place and date not given: "We Will Need Every Professional"]

[Excerpts] Premier-Designate Jozsef Antall nominated Sandor K. Keresztes for the position of Minister of Environmental Protection.

[Vodros] Perhaps it will not be far from the truth for me to say that the note "Defense Ministry" can also be hung on the Ministry of Environmental Protection.

[Keresztes] All the more so because, as is well known, environmental protection has a strategic importance.

[Vodros] I also think that the future minister of Environmental Protection will need a good strategic sense when reorganizing this ministry. By this I mean that, among the professionals, there are people who approve and people who disapprove of combining environmental protection and water affairs.

[Keresztes] I am aware of these considerations, and there are arguments both for and against this. My answer will obviously make it clear that no final decision has yet been made; in other words, I cannot say anything sure either about what sector, if any, will leave the environmental protection ministry, or what will be added to this ministry. One thing is certain: The sphere of authority of this ministry should be extended. [passage omitted]

[Vodros] In your opinion, are there experts in Hungary today who could carry out the most urgent tasks in a strategically important environmental protection ministry?

[Keresztes] I would not say that there are many such professionals today, but I will say that we will need every professional. Therefore, it is one of my goals to be able to work together with a well-paid staff, if Parliament approves my nomination, because I think that the reason for the high rate of departure of professionals from various ministries is that good professionals are better paid elsewhere. I also regard it as extremely important that environmental protection should be dealt with not only by those who are paid for this, but also by as many so-called civilian organizations as possible. In other words, in the future, environmental protection initiatives will no longer be regarded as opposition initiatives, but will be an organic part of the activity of this ministry. [passage omitted]

Process To Reclaim Cadmium From Batteries Developed

25020012B Budapest KOHASZAT in Hungarian Feb 90 pp 85-87

[Article by Istvan Pentek, Jozsef Kovacs, Jozsef Laszlo and Lajos Molnar, of the Metallotechnika Innovation Park, Ltd.: "A Process to Reclaim the Cadmium Content of Used Ni-Cd Batteries"]

[Excerpts] In our country METALLOGLOBUS collects used Ni-Cd batteries. Each year about 500 tons of batteries are collected, containing about 200 tons of sheet containing cadmium which is separated from the other parts containing nickel and iron. The pole sheets of the batteries thus separated contain large quantities of cadmium oxides and metallic cadmium. Since cadmium is a dangerous heavy metal with poisonous properties we must prevent its dispersal into the environment. At the same time, the price of cadmium and its compounds is very high so it is extremely justified to reclaim them from used batteries, for both environmental and economic reasons. [passage omitted]

Taking into consideration all the prescriptions and conditions the Metallotechnika Innovation Park developed a hydrometallurgical process to reclaim the cadmium content of the mass derived from the cadmium containing pole sheet of Ni-Cd batteries. The method has been patented under number 3976/1987 titled "A Process To Utilize the Cadmium Mass of Used Nickel-Cadmium Batteries Which Protects the Environment."

The new process ends the dangerous waste character of cadmium containing mass or powder and, without any environmental harm, economically processes it so that the chief product is a high purity metallic cadmium sponge. [passage omitted] The high efficiency of the process is made possible by two-step cadmium cementation.

Following cementation of the cadmium, and as a result of the pH setting, we hydrolize together the iron-III hydroxide and all the Zn infused during cementation, in the form of a basic Zn carbonate. This is additionally safe seeing that the

Cd content in the Na_2SO_4 final solution of our process, at a concentration of about 150 g/l, will not be more than the 0.1 ppm authorized by the authorities.

The technological steps of the process developed first on a laboratory scale were finalized by processing several hundred kg of cadmium mass powder on a large laboratory scale. On this basis the new process consists essentially of the following chief steps:

- sulfuric acid solution of the cadmium mass powder,
- two-step cementation of the Cd from the solution containing the Cd, filtered pure, with Zn sheet or mass and then with Zn powder,
- removal of the Fe, in the mass with the Cd and also dissolved, from the Zn, setting the pH with oxidation hydrolysis,
- removal of basic Zn carbonate from the solution containing Zn with NaHCO_3 , producing Na_2SO_4 .

Within the framework of a research and development contract METALLOGLOBUS entrusted our enterprise with preparation of plans for a plant to process cadmium mass. In the first step the planned plant will be suitable for processing roughly 100 tons of cadmium mass per year, the amount which can be obtained from the roughly 200 tons of cadmium containing used batteries generated in our country each year. [passage omitted] The chief product will be 50 tons of wet cadmium metal sponge (12 percent water) per year, which will be shipped continuously to METALLOGLOBUS for processing or direct sale. [passage omitted] When the sale of by-products is included the net profit per year before taxes is estimated at 25 million forints. The investment cost is estimated at about 33 million forints.

POLAND

Ecoglasnost Leaders on Election Plans, Current Activities

90P20024 Warsaw *POLITYKA* in Polish
No 16, 21 Apr 90 p 12

[Interview with Georgi Avramov and Emil Georgiev, Ecoglasnost leaders, by Piotr Gadzinowski; date and place not given]

[Excerpt] [Passage omitted] [POLITYKA] You belong to the oppositionist Union of Democratic Forces. Will you put forth candidates in the June parliamentary elections?

[Georgi Avramov] We joined the Union in order to assist the democratization process. Today we are the most popular organization in the country. In the last two public opinion polls we received the highest percentages for confidence and support, in one of these even 74 percent. In all probability our popularity stems from the fact that we do not go in for straight politics nor do we fight for power.

[Emil Georgiev] However we do want to have our representatives in the National Assembly, defending our ecological interests. If, however, it should happen that after the elections the Union obtains power, or one of the other parties associated with the Union forms a government, then we would leave.

[POLITYKA] How is Ecoglasnost keeping busy today?

[Emil Georgiev] We are engaged in a protest action against the construction of an atomic energy plant in the vicinity of the city Belene and in the closure of the metal processing plant near Plovdiv. We are explaining the impact of exploiting uranium deposits near the city Rakovski on the number of illnesses among children.

We are also preparing two large reports. The first on the quality of food for our children and the second on the condition of land under cultivation and the impact of chemical substances on food.

[Georgi Avramov] Since we do not collect membership dues, we organize various campaigns in order to obtain money, ranging from the collection of waste paper up through concerts. We are also in contact with international ecological organizations and independent movements in Central-eastern Europe. We have the first results from cooperation with Solidarity and the Hungarian Greens Party.

[POLITYKA] It [your movement] began with the clouds over Ruse. Does anything threaten the city now?

[Emil Georgiev] Last year the Romanians stopped the harmful production in Giurgiu. Unfortunately, once again in February, gas clouds appeared over Ruse. We organized meetings with representatives from the Romanian Ministry of Environmental Protection and we received assurances about the closure of chemical factories.

In Giurgiu, a movement close to Ecoglasnost has appeared. We assisted them financially. Shortly we will organize a cooperative action—we will divide the Danube with boats in order to protest against the construction of an atomic energy plant between Belene and Svishtov. This is the beginning of our cooperative activities. In our slogan we proclaim that "There is no future without Ecoglasnost."

[POLITYKA] Thank you for the interview.

ROMANIA

Government Acts To Limit Timber Harvest

AU1605122090 Bucharest *ROMPRES* in English
0753 GMT 16 May 90

[Text] Bucharest, 16 May (ROMPRES)—The Romanian Ministry of Water Management, Forestry and the Environment estimates that over 1990-1995 the felling volume will be of 15,800 thousand cubic meters at the most, of which 13,000 thousand cubic meters are meant for industry, stated Dr. Ion Milescu, state chief inspector

in the above-mentioned ministry. Such severe measures are required by a dramatic situation of the Romanian forests, since nearly three million hectares disappeared from the country's map. From 9,000,000 hectares of afforested area a century ago, only a little over 6,000,000 hectares remained. A quarter of the afforested area was destroyed and nothing else was placed instead. In the 1951-1989 interval, 114 million cubic meters of timber were exploited over the real growth and recovery possibilities. If a large felling volume is maintained, over 1996-2000 the exploitable timber will stand at less than 10 million cubic meters a year. In the year 2010 Romania will have only 791,000 hectares of mature stands from 1,067 thousand hectares as it should boast in conditions of sensible exploitation.

Private Ecological University Opens in Bucharest

*AU1705105090 Bucharest ROMPRES in English
0910 GMT 17 May 90*

[Text] Bucharest, 17 May (ROMPRES)—Professor Dolphi Drimer announced the official opening in Bucharest of the Ecological University, first of its kind in the world. This private higher learning institution will finance itself on the basis of the students' fees, established every year, of the incomes from scientific research activities, of the fees for postuniversity courses, of the donations, of the scholarships given to students by various institutions, enterprises and personalities.

The Ecological University cooperates with the higher learning institutions all over the country, with UNESCO and other universities in the world, integrating itself in the world ecological movement as part of the ecological activity in Romania.

This year 1,200 students can attend the courses of the four faculties (medicine, law, engineering and natural sciences) of the university.

The construction will soon start of a campus university for 10,000 students, conceived as a stockholding venture that value of which is about 800 million lei.

During a press conference the rector of that higher learning institution, Professor Dolphi Drimer, specified that the Ecological University is not a challenge for the state higher learning education, but it is a complementary form.

YUGOSLAVIA

Serbian Commission Denies Increased Radiation

*AU1605165290 Belgrade Domestic Service
in Serbo-Croatian 1300 GMT 16 May 90*

[Milivoje Radenkovic report]

[Text] [Announcer] A special commission of the Serbian Presidency gave a news conference today to defend its report on radiation on republican territory in the period

from August 1989 to March this year. The report states that there was no increase in radiation. However, the subject deserves more attention. Here is Milivoje Radenkovic:

[Radenkovic] We remember the end of last year and the beginning of this year for the controversial news that there was not increased radiation in Belgrade and eastern Serbia. Numerous claims made by experts and people who are competent in every respect and scientists above all, created a really unpleasant situation. The feeling [word indistinct] that one's nearest and dearest are being exposed to radiation and that the official authorities are allegedly concealing and covering this up, did not please any of us. Therefore, the Serbian Presidency decided to set up a so-called state commission with the task of investigating the affair.

The commission included competent members of the Serbian Academy of Arts and Sciences who briefed the Serbian Presidency on their findings a few days ago and did the same for interested journalists today.

They repeated what was already known. There was no increase in radiation in the aforementioned period. No matter how much reason we all have to be happy about this report, an ethical and human question is now hanging over this issue.

Does this mean that the experts, like Nada Ajdacic and Milenko Martic, because of whose findings the whole fuss arose, have been discredited from the point of view of their expertise and profession?

How should we view this discrediting of people who have been giving us information about radiation for years and were among the first to penetrate the wall of silence over the Chernobyl accident? Why did we believe their information on Chernobyl and now we do not believe them?

An exact answer to this question nevertheless has a human dimension. The members of the government commission also explained this in their report. They say that this involved a scientific oversight, which could be expected, since in measuring the level of radiation, Ajdacic and Martic (?proceeded from a low initial reading) without sufficient preparation. So there was an oversight in their readings, which caused the alarming situation.

However, it should not be forgotten that the aforementioned commission had many things to say about the general disorganization in checking radioactivity under our conditions and put forward several recommendations on changing this situation.

In order for this report to be complete, we are obliged to say that representatives of the (?Greens) remain reserved about the report by the state commission and have announced that there will be so-called international arbitration. As far as the public is concerned, the affair is not yet over.

ARGENTINA

Editorial Urges Government Efforts, Investment in Ecology Sphere

PY1505235390 Buenos Aires BUENOS AIRES
HERALD in English 15 May 90 p 10

[Editorial: "Environmental assets"]

[Text] One of the many advantages of the increasingly shaky price stability in recent weeks is that many people have started to look at some of the longer-term problems such as the environment. There are certainly enough environmental issues around at present to warrant such long overdue attention. The municipal environment undersecretary told a leading daily yesterday that Buenos Aires' air pollution index was more than twice the acceptable maximum figures as a result of vehicle exhaust and the high lead content in petrol; the breakdowns in the Wilde pumps are a time-bomb over the entire city's water supply; the Atucha nuclear power plant's safety is rapidly becoming an issue, as are the import of toxic waste and the radiation reported on Costanera Sur.

While environmental problems are by definition universal since neither water nor air pollution respect national frontiers, there are also specifically Argentine aspects. One of the main problems facing the cause of environmental protection here is the current lack of interest being shown by the department responsible for most of the potential pollutants such as petrol; water and power (via nuclear energy): namely, the Public Works Ministry. This ministry is so obsessed with the admittedly laudable aims of privatization and contributing to the government's austerity drive that it has almost entirely neglected the infrastructure needed to protect the air we breathe, the water we drink, etc. And while privatization has many economic virtues, it offers little guarantee that environmental deficiencies will be remedied. While environmental awareness is increasingly reaching even business circles, especially in developed countries, private companies traditionally measure their success by profit or production and not what they do for the environment.

Modernizing the economy is the main thrust of the government's efforts, not just the Public Works Ministry's, but current trends suggest that this aim could end up achieving less than maintaining the quality of the environment and at much greater sacrifice. The general drift of the world economy is towards the centres of power and integrated regional units—there is thus every danger of Argentina making all the sacrifices to streamline its economy and not having anything to show for it. But while Argentina has little hope of attracting investment from the developed countries, its relative freedom from pollution could attract the people of those countries in a repeat wave of the immigration which first made this country rich, especially if a new Chernobyl occurred in

the Northern Hemisphere. The government is neglecting investment in preserving the increasingly scarce purity of air and water without realizing that the environment may well be the best investment it could make.

BRAZIL

Paschoa Installed as CNEN Security Director

PY0905195290 Rio de Janeiro O GLOBO
in Portuguese 8 May 90 p 8

[Text] Nuclear physicist Anselmo Salles Paschoa, 52, was installed as the executive director of the First Department of the National Commission for Nuclear Energy (CNEN). During the ceremony on 8 May Paschoa cited the Constitution and guaranteed the openness of the nuclear activities carried out in Brazilian territory. The First Department is responsible for the area of nuclear security and control of equipment. On 10 May he will go to Goiania to inspect the nuclear waste that was stored at the Abadia de Goias, after the nuclear accident caused by the Cesium 137 in September 1987.

Paschoa said that the barrels and tanks containing the nuclear waste have no leakage problems. I decided, however, to appoint a commission that will determine whether the waste will be transferred to another site, Paschoa added.

Paschoa is a professor at the Pontifical Catholic University (PUC) of Rio de Janeiro. He was also among those who worked on the drafting of a document reporting some failures in the Angra I Nuclear Plant operation. The release of the document led the courts to order the closure of the plant. CNEN President Jose Luiz de Santana Carvalho administered the oath of office to Paschoa during a ceremony held at CNEN headquarters in Botafogo.

Firms May Be Punished for Violating Reforestation Law

PY1005024890 Brasilia Domestic Service
in Portuguese 2200 GMT 9 May 90

[Text] The Brazilian Environmental Institute, IBAMA, is studying the possibility of suspending the registration of four large steel companies in Minas Gerais that use charcoal as energy source. These companies are not complying with reforestation law.

The Brazilian legislation mandates that all enterprises which annually consume more than 12,000 cubic meters of charcoal are required to maintain reforestation projects.

According to Helio dos Santos Pereira, director of the IBAMA Supervision Department, intense monitoring of the 128 large steel companies in the state of Minas Gerais has been under way in the past two weeks. Varied irregularities were found, both within the industrial units and in the transport of charcoal. The monitoring will

continue for another two weeks in Minas Gerais, where 80 percent of the large national steel companies operate.

ECUADOR

Government's Reforestation Program, Financing Plan Outlined

90WN0071A Quito *EL COMERCIO* in Spanish
29 Apr 90 p A6

[Text] The country has 2.6 billion hectares of land requiring an urgent reforestation program to prevent the advancement of the desert.

Deforestation is progressing alarmingly in the nation. The resources are minimal for undertaking programs to restore fertility to the land.

The Ministry of Agriculture's recently created Undersecretariat of Forests and Renewable Natural Resources needs a large budget for its forestation and reforestation programs.

For this year it has an approximate budget of 500 million sucres from the state's general appropriations: a sum that will make it possible to reforest 100,000 hectares per year, because the per hectare cost amounts to 5,000 sucres.

As part of the forestation programs, the Development Bank maintains a National Forestation and Reforestation Fund (Fonafor), making available the sum of 1 billion sucres.

The Development Bank, in cooperation with the Ministry of Agriculture and as part of the Fonafor program, grants loans for reforestation at an annual interest rate of 9 percent.

When the reforestation has been accomplished, the Ministry of Agriculture reimburses the Development Bank for the credit, and the debtor pays when he begins exploiting the forest, at no interest whatever.

The Undersecretariat of Forests and Renewable Natural Resources was created in January of this year, according to the head of that department, Marco Vinueza Rojas. It is currently engaged in an effort for organization, planning, and programming.

Vinueza remarked that, to attain its goal, it has devised a plan of action for Ecuador's forests, based on a diagnosis, and on policies, strategies, and profiles for projects, taking both national and international agencies into consideration for their financing, progress, and execution.

According to the technician, most of the hectares requiring forest repopulation are located in the Inter-Andean Pass, on the coast, and in the east. On the coast, they are situated in the southern part of El Oro Province; in Guayas, on the Santa Elena peninsula; in Manabi; and in an extensive area of Esmeraldas.

In the east, they are in the area devastated by petroleum development and colonization.

There are deforested areas in El Carchi, in the Bolivar Canton zone. In Imbabura, they are located in the Chota Valley, the Palacara River zone, and the northwestern part of the province.

In Pichincha, they are in the Guayllabamba Basin and in various localities where there is primary and subsistence agriculture.

In Cotopaxi, they include the Saquisilí and Salcedo zones and several communities in which there is subsistence agriculture.

In Chimborazo, they are in the Palmira zone, covering nearly the entire province.

In Bolivar, they are in zones in which both soil and minierterprises have deteriorated.

In Canar, they include all areas in which the headwaters of rivers and the minierterprises need to be reinforced.

In Azuay, they are located in the Paute River conservation zone; and in Loja, they cover the entire area stricken by drought, erosion, and lack of vegetation.

The reforestation programs are channeled by direct administration, through agreements with development agencies and public sector entities; with social participation through cooperatives in the peasant communities, contracts with natural or juridical persons, and military conscription.

The National Development Bank granted 463 loans for reforestation during the period 1986-88.

Current Land Use

As studies have proven, 7.7205 million hectares of Ecuador's area are occupied by the agricultural-livestock sector.

A total of 18,800 hectares consist of salt desert areas; 92,500 hectares of shrimp grounds; 11.473 million hectares of natural woods; and 55,641 hectares of forest plantations. There are 2.6 million hectares assigned for forest repopulation, consisting of land without agricultural-livestock use, unproductive land, and barren high plateaus; as well as 5.044 million hectares occupied by urban zones.

Available Woods

According to the Undersecretariat of Forests, the country has the following wooded areas: 2.5 million hectares of woods in Napo and Sucumbios; 3.25 million hectares in Pastaza; 750,000 hectares in Morona Santiago; 300,000 hectares in Zamora-Chinchi; 1.06 million hectares in Esmeraldas; 210,000 hectares in northeastern Pichincha; and 180,000 hectares in Loja and El Oro.

The Forest Industry

It has been calculated that the forest industry sector generates 69,050 jobs: 10,000 in mechanized sawmills; 2,400 in the board industry; 2,200 in sawmills; 150 in parquet flooring factories; 300 for packing case producers; 700 in furniture industries; 35,000 in carpentry and woodworking shops; 12,000 in lumberyards; 5,000 in the paper and cardboard industry; 600 in post conservation; 200 making palmetto products; and 500 for ivory nut producers.

GUATEMALA

Workshop Views Environmental Initiatives, Deforestation Rate

90WN0037A *Guatemala City DIARIO DE CENTRO AMERICA in Spanish* 11 Apr 90 p 10

[Text] During a workshop held at ASIES [Research and Social Studies Association], in which educators and environmentalists took part, agreement was reached on developing strategies and preparing action for a joint plan of environmental education.

Those attending the workshop, including representatives of nongovernmental groups, public and private agencies, and international organizations, accepted a commitment to develop strategy and action programs over the next 3 months, since they consider that action must be taken urgently on the environmental problems of the country.

In analyzing that situation they pointed out that there has been an increasing deterioration of the environment, particularly in terms of deforestation, which has an impact on other problems, such as erosion, water shortages and pollution, and the disappearance of animal and plant species.

In 1950, 64.7 percent of the country was covered in forest. Now the forests cover only about 39 percent of the territory. It has been calculated that 640 square km of the country have been deforested during the past 10 years, while only 490 square km have been replanted. It was explained that, due to erosion, about 1,500 tons of soil are lost annually for each square kilometer of land.

It was stated that environmental education means "the continuing process which trains individuals to act in a responsible way, applying their knowledge, attitudes, and skills in their interrelationships with society and their surroundings to improve the quality of life of the people, principally through the sustainable use of natural resources."

During the panel discussion held during the workshop it was announced that an association of university students for the defense of the environment had been established, and various initiatives of the same kind have been undertaken at the Universities of San Carlos and Rafael Landivar.

At the same time, it was reported that environmental studies have been included in study programs at various educational levels.

The Committee on Literacy (Conalfa) and the National Environment Council (Conama) have appointed organizers in Izabal, Huehuetenango, and Quetzaltenango. Other initiatives include appointing personnel of the Army and of different police bodies to handle responsible efforts in this field.

A report was also delivered on the program for the protection of the forests and natural resources in sensitive biological areas, which the Center for Conservationist Studies (Cecon), sponsored by USAC [San Carlos University] and Inguat [Guatemalan Institute of Tourism], is carrying out.

The seminar-workshop was sponsored by ASIES, Conama, the Peace Corps, and "The Nature Conservancy" organization.

HONDURAS

Cohdefor Reports 50-Percent Deforestation

90CA0027Z *Tegucigalpa EL HERALDO in Spanish* 6 Apr 90 p 37

[Text] During the past 20 years the destruction of the forests has been alarming. In 1966 Honduras had 4 million hectares of deciduous forest, 2 million hectares of mature pine trees, and 800,000 hectares of young pines.

At present the forest area has been reduced by almost 50 percent. There are now only 2.6 million hectares of deciduous forest and 1 million hectares of mature pine forest.

In 1989 alone 45,000 hectares of forest were destroyed by fire, and it is estimated that each year there are about 2,000 forest fires.

In the area of La Mosquitia alone Nicaraguan refugees have destroyed 8,000 hectares of forest, and anti-Sandinist forces encamped in the El Paraiso region have cut and burned 12,000 hectares. The damage which those groups have caused is estimated at \$75 million. That is, the Honduran Government would have to invest that much money to reforest those places.

The foregoing data were provided on 5 April by the Honduran Corporation for Forest Development (Cohdefor), at a ceremony marking the first meeting on the Forest As Social Communicator.

At the ceremony the following officials of Cohdefor were present: Porfirio Lobo Sosa, general manager; Gustavo Morales, technical advisor to the Board of Directors; Rene Gamero, manager of the Department of Planning;

and Aquiles Neuenfchwander, chief of the Interinstitutional Project (between the FAO [Food and Agricultural Organization of the United Nations] and Cohdefor, among other agencies.

According to figures provided by the Cohdefor officials, for each 85,000 hectares of forest lost each year two sources of water dry up. For example, each year the flow of water from streams into Los Laureles water reservoir is reduced by 40 percent.

The water shortage in Tegucigalpa is such that in order to supply the people with drinking water, it is necessary to transport water over a distance of between 25 and 40 km.

Population growth also contributes to the deterioration of forests, sources of water, and animals. It is estimated that in Honduras the annual demographic growth rate is about 20 percent. To that figure should be added the fact that 62 percent of the population use wood to cook their food.

Forestry specialists explained that there are various factors which contribute to the destruction of the forests. For example, there is agricultural expansion and the movement of farmers to different parcels of land.

Nevertheless, they said that Honduras still is in a position to make up for lost time, since the country still has forests and land which, for the most part, is used for forestry purposes.

Cohdefor, with the help of international organizations, has a plan of action to preserve the tropics, in which there are two basic aspects: forest management and industries and the training of human resources and the constitutional framework.

In the areas which were inhabited by Salvadoran refugees 300,000 hectares of forest have been sown. In the view of those making presentations at the meeting, over an average period of 4 years Cohdefor will undertake several projects valued at \$93.8 million. Some 40 percent of the investment will be made by international organizations.

Juan Blas Zapata, representative of the Agricultural Center for Research and Instruction in Central America (CATIE), reported that in Central America 500,000 hectares of forest are destroyed annually. Specifically in Honduras 80,000 to 100,000 hectares are destroyed annually by fire, timber cutting, and plant diseases.

JAMAICA

Health Official Notes Improper Toxic Waste Disposal

FL0905141690 Bridgetown CANA
in English 2131 GMT 8 May 90

[Text] Kingston, Jamaica, May 8 (CANA)—Jamaica imports roughly 294,000 tons of toxic substances per year but there is nowhere to dispose of the waste generated as a result of processing, according to an official of

the island's Environmental Control Division [ECD]. Toxic materials imported range from asbestos, inorganic and organic chemicals, to fertilisers and pesticides.

Dr. Homero Silva, director of the Environmental Control Division of the Ministry of Health, told a national conservation strategy conference held in Kingston recently that when the ECD is asked where toxic materials should be disposed, the only advice it can give is to store them safely until a suitable site has been identified. He said that the Pan American Health Organisation was presently funding a study to select two sites to be used exclusively for the disposal of toxic wastes.

He said that at present in storage and awaiting safe disposal were polychlorinated benzils (PCB's) from electric transformers damaged during Hurricane Gilbert in September 1988. This lubricant is extremely toxic and is a cancer causing agent. Also in storage too were 2,500 gallons of toxic chemicals in temporary containers, and 16,000 gallons of polluted bunker oil.

Dr. Silva noted that in many cases, toxic waste generated by industrial, commercial, and agricultural activities were disposed of improperly and eventually contaminated soil as well as underground and surface water. He cited as example the disposal of phosdrin, a potent pesticide in the Lakes Pen dump on the outskirts of the city, contamination of an unnamed spring by benzene and lead contamination in the Red Pond area of Spanish Town, 14 miles from Kingston.

Lead contamination particularly in the Spanish Town area has been a continuing problem and several cases of lead poisoning have been reported in children and even adults living near to an old battery factory in the area. It is estimated that it would cost J 300,000 dollars (one J dollar = 14.2 U.S. cents) to remove the contaminated soil. The closure of the factory has created a number of environmental problems, chief among them the setting up of back-yard smelters in which old batteries are recycled. According to environmentalists, this has greatly increased the levels of lead contamination in the area.

PARAGUAY

Bill Under Consideration Would Ban Toxic Waste From Entering Country

PY1805133890 Asuncion ABC COLOR in Spanish
18 May 90 p 7

[Text] On 17 May the Senate approved the draft bill that prohibits the import, stockpiling, or use of products defined as dangerous industrial or toxic waste and it

establishes the pertinent punishment if the law is violated. The bill was submitted by Senators Alcibiades Fernandez (ANR) [Colorado Party] and by Jose Rodrigo Campos Cervera (PLRA) [Authentic Liberal Radical Party].

The bill, which will now be studied by the Chamber of Deputies, bans any individual or legal entity from importing products defined as dangerous industrial or

toxic waste and from permitting in any way its entry, stockpiling, use, or distribution in the country.

Violation of the law will be considered as a crime against human health and the environment and those who violate it can receive sentences ranging between two and 10 years. Depending on the case, and if public officials are implicated, guilty parties will be fired, banned from holding public posts, and will not be allowed to operate commercially.

BAHRAIN**Minister of Public Works Discuss Water Problem**

90WN0026A Manama AKHBAR AL-KHALIJ in Arabic
24 Mar 90 pp 4, 7

[Interview with Majid al-Jashi, minister of public works, by Hafiz Imam: "A National Plan is Essential for Facing Water Problem"; first three paragraphs are AKHBAR AL-KHALIJ introduction; date and place not specified]

[Excerpts] [Passage omitted]

Minister Majid al-Jashi regards the water problem or water security as one of the most complex and serious problems facing the country, notwithstanding governments' efforts to provide good-quality water to consumers. The minister warned that should ground water continue to be depleted and demand and consumption go up with limited government capabilities to build more desalinization plants, the water situation will become very, very serious. [passage omitted]

AKHBAR AL-KHALIJ editor-in-chief Dr. Ahmad Salman Kamal said that minister Engineer Majid al-Jashi is a self-made man whose work experience goes back to his graduation from the American University of Beirut as a civil engineer. He worked for a year for the Ministry of Works and, thereafter, started his tour of the Gulf by working for a contracting firm in al-Doha and, after that, for the Kuwaiti Ministry of Public Works and for an engineering consulting office. He then worked as a director for the Abu-Dhabi Public Works Department and then as a director for the Ministry of Planning, Development and Engineer Services, as an undersecretary of the Ministry of Development and Industry and as minister of public works, electricity, and water. During his tenure, the ministry has branched out and expanded into multiple specializations which he has parceled out to his aides.

Engineer Majid al-Jashi is a member of the Supreme Oil Council headed by His Highness the Prime Minister and a member of the board of trustees of the Bahrain Studies and Research Center. He is also president of the Classical Music Society and a member of the Bahrain University board of trustees. [passage omitted]

[AKHBAR AL-KHALIJ] The truth is this ministry is facing enormous tasks and greater challenges related to water shortages, roads, etc. What plans has the ministry drawn to face these challenges and tasks and their attendant problems?

Challenges...and Plans to Face Them

[al-Jashi] As you said, these are indeed tremendous challenges and amid the circumstances and fiscal conditions facing Bahrain, these challenges became more vehement. With regard to plans, of course there are plans for every side and sector, for electricity, for water, for roads, and for sewage. Each side draws its own plans which may be ambitious and beyond its capabilities, but

we study these plans and review them with the competent ministries and in particular with the Ministry of Finance and National Economy to discuss which ones are feasible. So the plans are there and we are aware of all the various problems blocking our progress which we have to face and settle, such as water, sewer, and road issues. However, we can only carry out those plans that are included in the budgets allocated for such projects. That is why I feel that what we are doing does not meet our aspirations and, indeed, is below the ambitious plans. We know that Bahrain has limited income and a lot of priorities, but money should not be allocated to them to the exclusion of other things. Indeed, the budget should be distributed equally over the various sectors like education and health.

Water...Most Complex Problem

[AKHBAR AL-KHALIJ] We have raised a question about the water and desalinization problem, and although it is a problem that requires a radical solution, the minister only glanced over it. The government is unable to set up an unlimited number of new desalinization projects and cannot always rely on contributions from Arab development funds and financing. Ground water is being constantly repleted. Is there a solution? Is there a vision? Is there a strategic plan?

[Al-Jashi] The fact is that I regard the water problem as the most complex and serious problem facing Bahrain. Because of irresponsible use, we have unfortunately failed to conserve our water wealth.

To put the problem in its proper perspective, ground water is diminishing and its salinity rate is rising day by day. Only a few areas in Bahrain have mild or somewhat reasonable water. Should ground water consumption persist at the present rate, I believe that the situation in the next few years will be serious, very serious. The solution is not dependent on this ministry, but rather is the responsibility of several sides. With regard to our ministry, we have drawn up a plan which we are observing and have devised desalinization programs in light of our projected consumption rate in the future.

With regard to ground water programs, I expect us not to pump more than 8 millions gallons a day in order to maintain the ground water level. I admit that we have been unable to do that and we are now pumping many times this amount. The reason is that, due to the lack of capabilities, desalinization programs have not been carried out according to plans and expectations. Add to that the higher water consumption rates in Bahrain, among the highest in the world, and water seepage, a matter we are now grappling with area by area. As for desalinization programs, plans have been approved for the coming years up to 1995-96 and this will help to solve part of the problem. But we still have the matter of higher consumption, a very important matter. We have before us two lines for rationing, but they have not yet yielded positive results. The tariff has helped to lower consumption, but not to the level we had expected. On the other hand, we

are trying to build desalinization plants but rationing has to be nationwide. The Bahrain Studies and Research Center aims to conduct research and studies on water and the means to conserve it. As member of the center's board of trustees, I am familiar with this program and on following it up.

The program will be funded by the center and will be undertaken by several sides: the Water Liquefaction and Sources Department of the Ministry of Commerce and Agriculture and interested researchers at the universities.

Nonetheless, this matter in my opinion is a difficult one that requires decisive steps aimed at limiting household and industrial consumption and, indeed, land consumption.

Treated Water...Not Sufficient

[AKHBAR AL-KHALIJ] Why not use treated sewer water for agriculture?

[Al-Jashi] We have about 80 million liters (20 million gallons) of treated water a day while the Ministry of Commerce and Agriculture has a system for carrying treated sewer water for farm use. When the project is completed, it will carry around 40 million liters a day, or half of the amount for farm use. We hope in the future to develop these programs in cooperation with the Ministry of Commerce and Agriculture. Water currently transported to the Ministry of Commerce and Agriculture is used to irrigate new areas and perhaps in the future we will increase the amount of sewer water to irrigate existing areas, thus diminishing ground water depletion.

Engineer 'Ali Murad, assistant undersecretary for public works: There are other sides that use treated sewer water to water gardens in the city of Hamad, such as Hamad municipality.

What I mean is that because of the health hazards—even if only one in a thousand human beings uses it—and notwithstanding the fact that we have the purest treated water in the region because we use ozone, this water should be used to irrigate inedible crops such as trees and fodder.

[Al-Jashi] Our treated water goes through three stages, not two as is the case in other countries in the region. For after we pump the water for agriculture, we add ozone. But nevertheless a possible hazard remains even if, as Engr. 'Ali Murad said, it is one in a thousand.

[Murad] Bahrain University has asked us to supply it with treated sewer water to water the university grass lawns, but we hesitated to comply with the request in order to avoid any possible hazard or mistake.

Call to Ration Farming

[AKHBAR AL-KHALIJ] Your Excellency, do you not believe that using water for farming and watering gardens and street circles requires us to take a stand that may call for doing without farming to conserve water?

[Al-Jashi] The fact is that the Water Resources Department of the Ministry of Commerce and Agriculture is responsible for this matter. The other sides, like the municipality, are only partners. We, on our part, coordinate all our water affairs with the Ministry of Commerce and Agriculture. We cannot dig wells but rather, ask the Water Resources Department to do it.

As for doing without farming, I personally believe that we ought to concentrate on high-yield crops that do not require much water, like palm trees for example, and other kinds of trees.

I personally am against flooding Bahrain with all kinds of trees, vegetables, and fruits which we now get from abroad, because growing such crops is costly, to say nothing of the poor quality and the fact that they need a lot of water. I am for placing restrictions on farming. As for street circles, I think we ought to beautify them using the dry decoration method.

[Murad] A total of 10 million gallons of treated water is pumped daily to a limited number of centers: to al-Buhayr and Hurat 'Ali where trees and fodder are now being planted. It is also pumped to the city of Hamad and is on its way to Bura.

[AKHBAR AL-KHALIJ] We know that desalinization is costly and that getting mild suitable water to the consumer is a fundamental goal. Nevertheless, we raise the question of whether the ministry has conducted studies on the use of desalinated water by household and for drinking, for example? Some people drink "bilar" [as published] water and other drink mineral and other kinds of water. Why then this tremendous spending on desalinization? In other words, is this tremendous and costly spending actually warranted?

[Al-Jashi] Before talking about the quality of water, it would be good to point out a number of things. Bahrain desalinates about 40 million gallons of water that is pumped daily. If this amount is not made available, we would have to use an additional 45 million gallons of ground water a day.

This quantity has saved us the need to pump 40 million gallons of ground water. The desalinization program was designed to help us deal with higher consumption because the higher the consumption the greater the need to mix desalinated water with larger quantities of ground water, thus depleting the ground water and raising its salinity.

The desalinization program we had was expected to meet Bahrain's needs up to 1992. Due to the great increase in consumption, this program has not been realized and we had before us two solutions: either to pump desalinated water into the water systems or mix it more with ground water. We preferred to attain an acceptable level for drinking and cooking.

Why Not Drink Tap Water?

Engineer Jamil al-'Alawi: As the minister said, there is a plan to substitute ground water and limit its consumption to 8 million gallons a day, thereby creating the need to compensate from another source to meet mounting consumption. The only available source was desalinization. Desalinization is essential in solving the water problem and easing the ground water depletion crisis.

With regard to water quality, all the areas receiving mixed water are getting fairly good quality, and I am one consumer who drinks this water from the tap. As for those who use bottled water, this is a precautionary measure. There is another side. Improper storage in some buildings makes it difficult for some people to use tap water. Water storage tanks are inadequate, dirty, and rusty, but a small filter may be installed in the house or kitchen to make the water usable. I contend, however, that from the bacterial and chemical point of view, the water is acceptable and, in some areas, such as Manamah, al-Mahriq, Sitrah, 'Isa City, al-Rifa'ayn, 'Ali and Hamad, is of better quality, rather superior to the "biler" water, for it has a salt content of 500 parts per million compared to 600 parts per million for the "biler" water.

National Plan Essential to Water Security

AKHBAR AL-KHALIJ reiterated its question about wasteful water consumption and asked about the ministry plan up to the year 2000 to solve the water problem and supply water for household and industrial use.

[Al-Jashi] Our perennial function is to supply water for household and industrial use. Our source is ground water and desalinated water. As I have already said, we had planned to pump 8 million gallons of ground water a day, but because of growing consumption year after year, we have failed to meet the demand. Therefore, the only solution is more desalinization. This is a difficult and very costly solution because we need about 25 million dinars to build a 5 million gallon plant. A look at public consumption shows that our summer consumption amounted to 30 million gallons of ground water. If I want to supply ground water by building a desalinization plant to provide part of this daily figure, or 22 million gallons a day, I would need 60 million dinars. It is true that the government has allocated money to build two new desalinization plants which will be constructed, but by 1996 consumption will have gone up as well and, therefore, these two plants will supply part of the ground water and the only solution will be more desalinization. I say, however, that water consumption should be rationed nationwide for household, industrial, and agricultural use. This ought to be done within the framework of an integrated national scheme.

Tariff Applies to Ground Water Also

Eng. Jamil al-'Alawi joined in the conversation: The truth is that ground water consumption for agriculture and industry represents 20 percent of the overall ground water consumption. If the two-desalination plant project

is completed by 1995-96, ground water consumption will drop to five percent of the overall public consumption in the country. Our duty is to reduce ground water consumption in general and figure out various ways to consume mixed water.

[Al-Jashi] The fact is that the subject of water rationing is an extremely important matter. The ministry is pursuing this way through several avenues.

We are now ensuring that the tariff and meters are in place. Even areas that are not supplied with desalinated water have to pay the tariff. In some of the areas, we used to collect 1.5 dinars only for consumption, but, as of last February, we began enforcing the new tariff even on ground water consumers. This tariff is equal to half of the desalinated water tariff. This decision was adopted by the cabinet to curb water consumption because we found great waste by those paying only 1.5 dinars. There are consumption statistics for February that reflect this fact.

[Al-'Alawi] With regard to meters, prior to February, the tariff applied to 50,000 out of a total of 80,000 consumers. As of February, the number of meters has gone up to 70,000 meters or consumers.

In February, there were 9,000 ground water consumers. Statistics for the month of February show that 94 percent of ground water consumers pay a bill of less than 7.750 dinars and only six percent pay over that while two to three percent pay over 40 dinars.

Regarding ground water, 94 percent of the February bills did not exceed nine dinars and six percent were over 9.60 dinars.

Actually, the water tariff has been applied nationwide, thus giving the ministry a new tool to monitor consumption. The tariff is aimed at providing for the people's or the housing unit's basic needs at a low and highly subsidized price which is progressive. The goal is to curb unwarranted consumption. As for water, there are major programs to ration its consumption. The ministry has conducted several tests in certain households whose water consumption is way above average. We have advised the landlords that the ministry can help them reduce excessive consumption or waste. With respect to public buildings such as mosques and schools, there are ministry-coordinated programs to introduce all modern methods to curb overconsumption. We have succeeded in lowering consumption in some mosques and schools. We have also devised special programs for large buildings such as hotels aimed at lowering their consumption.

Another way we are trying to ration consumption is by reducing the amount of seepage in water networks. Normally, water networks leak from between 20 to 25 percent, but in Bahrain, because we are expanding the costly desalinization process, our programs for the next four years will lower the seepage rate as much as possible, hopefully to about 10 percent. An even lower rate

can be accomplished, but at a very high cost, and here is where we have to weigh the cost of repairs against the cost of seepage.

EGYPT

Alexandria's Rising Sea Level Sparks Concern

90WN0038A Cairo UKTUBAR in Arabic
8 Apr 90 pp 72-73

[Article by Muhammad al-Kilani]

[Text] Know that we might not live until 2025!

Know that officials in the Governorate of Alexandria will remain in their posts for only a few more years!

Nonetheless, future generations have rights that we owe them. Therefore, when academicians state that the city of Alexandria is threatened with extinction, and that it is exposed to inundation, we must be alert and concerned.

Scientists now estimate that the water level will rise by 55 cm before 2025 and by two meters before the end of the next century. This was stated at a UN conference on the environment held in October 1988. The increase is attributed to the melting of icebergs and a temperature increase.

Because the elevation of most of Alexandria, a pretty city in which 4 million reside, does not exceed one meter, the rising water level in the Mediterranean Sea poses a danger to the city.

Officials in Alexandria and its university are not thinking about this danger approaching our city. Even when the Governorate of Alexandria was invited by the Italian city of Venice, one of the world's most flood-prone cities, to establish an international center for cities exposed to inundation, no official from Alexandria monitored events there. This, despite an offer to host the governorate as a full guest, and the fact that this center will be a line of defense for cities threatened with extinction, undertaking as it will the exchange of information and studies conducted by governments, universities, and institutions regarding all aspects of cities exposed to inundation and ways to protect against this danger.

Given that this problem is not restricted to Alexandria alone, but that it is a national problem of concern to Egypt, UKTUBAR saw fit to survey the opinions of experts and scientists concerned with the rising water level:

The problem is worldwide and not just local, because climatic changes and the accompanying rise in the sea level, whose extent has not been confirmed, expose all low-lying states to flooding, especially those with coasts affected by natural erosion due to different geological factors.

Alexandria is built atop a geological formation that is two to five meters above sea level, except for several extensions of its eastern and western coasts.

The city is not exposed to strong waves as are other regions in the world. However, the city's coasts suffer from continual erosion, which averages 20 cm per year on all of its coasts, except the al-Anfushi coast, because of ocean currents, their direction, and their effect on the coast.

Therefore, I expect 2025 to see an increase in the sea level along the coasts of the city. The areas most exposed to inundation are al-Ma'murah and al-'Ajami. Al-Mina' will also be affected, and it is likely that the sea will reach and inundate Alexandria. It will also reach Lake Maryut, which lies below sea level. I do not agree with models prepared by scientific institutes abroad, which predict the advance of the sea over large areas without taking into account existing elevations. However, it is necessary to pay heed to the fact that Alexandria's coasts are exposed to continuous erosion of 1.2 millimeters per year, according to geological and archeological measurements. This is in addition to the rise in the sea level.

Dr. Muhammad 'Izz-al-Din al-Ra'i, the director of the Institute for Advanced Studies and Research at the University of Alexandria and a professor of environmental studies, adds that the expected increase in the average temperature is much less than the temperature differences that occur from one season to the next. However, the temperature change affecting the entire planet will lead to the melting of large quantities of ice and a consequent rise in the sea level. Therefore, coastal states lying below sea level have become greatly concerned about these effects and have begun to translate them into expected environmental impacts on coasts in preparation for pursuing a development policy that will reduce the effects of, and adjust to, a rise in the sea level.

Because of the rise in the sea level in Egypt and the extent to which it affects northern Egyptian coastal areas, it is necessary to immediately begin preparing a geographical data base that takes into account the new possibilities offered by remote sensing technology to classify land uses. It is also necessary to obtain precise information on rises in the sea level, population density, the distribution of industrial areas, the distribution of agricultural crops and residential areas, and social and economic maps.

The European Common Market states along the northern Mediterranean Sea facing Egypt have developed data bases. Many coastal states have formulated computer-generated models to determine the areas subject to flooding and the extent of the expected effect in each area to determine the possibility of coping with this problem. We must recognize that such information in Egypt is either outdated and cannot be relied on, or is deficient and would lead to erroneous results.

Dr. al-Ra'i believes that we in Alexandria must put together a task force to study the expected environmental effects resulting from these changes and to make recommendations, especially since the rise in the sea level in Alexandria will have economic, health, and social effects. Fishermen, for example, will abandon low production areas, and agricultural laborers will migrate from areas covered with water. Also expected are changes in the average Nile inundation, an increase in the incidence of skin cancer, and a drop in agricultural production due to damage to the ozone layer and an increase in rainfall averages and the average sea level.

It is illogical for us to build dams and walls around industrial and economic areas.

Dr. 'Umran Farihi, assistant professor of marine geology at the Coastal Research Institute, states that the agency responsible for implementing protective works for Alexandria is the General Organization for the Protection of Coasts of the Ministry of Irrigation. It protects Alexandria's coasts from erosion by supplying them with industrial sand, which must be similar to the original sand. One hundred and seventy thousand tons of industrial sand have been used, but they were swallowed by the sea water. I believe that the problem of erosion and sedimentation is one of the most serious problems facing Egyptian coasts in addition to the threat posed by the rise in sea level.

Dr. Nabil Muhammad al-Fishawi, an assistant professor at the Coastal Protection Institute states: I attended a seminar in Florida on the effect of the rise in the sea level and atmospheric conditions on the environment. Legal questions that would arise in the event of a rise in the sea level and the inundation of coasts were discussed at this seminar, in addition to the compensation that would be paid to American citizens. The advanced, industrialized states were called on to assist developing states with coasts exposed to inundation due to the effect of nuclear tests, whose radiation and explosions are destroying the environment and creating a hole in the ozone layer. Responsibility for this hole lies with the advanced states, and the burning of oil, coal, gas, and wood in factories and power stations to produce energy. In the conference, which was held in Florida in December in 1989, there was a warning against the drawing of ground water from coastal areas. Other recommendation included exploiting areas far from the coasts, and making the sea a protected area. The media must be used to increase awareness of the need to establish projects and buildings in areas not directly on the sea.

Muhammad Khamis al-Sayyid submitted several recommended protective measures to cope with the problem of the rise in the sea level in Alexandria. They include reinforcing the port of Alexandria by erecting hard installations and not using ground water in the city, as was proposed for industrial purposes, in order not affect the rate of natural erosion in the coastal area; making the protected area of the sea larger than the currently existing area; avoiding the construction of large, high-use

buildings; and preventing the operation of industrial installations directly on the sea coast. Regarding Lake Maryut, it is necessary to reinforce the area where land touches the lake by means of the necessary engineering solutions. It is also necessary to quickly prepare a data base regarding the crisis to facilitate the formulation of a specific model for Alexandria in which all components of the problem and their effects on society are represented in order to find the most suitable solutions.

Dr. 'Izz-al-Din sees a need to increase the green belt area, plant forests, control energy use in factories, formulate policy and laws regarding the development of coastal areas that take into account the extension of the sea, formulate an agricultural policy for the use of lands covered with water, and participate in the International Center for Cities Exposed to Inundation in Venice. Also, the Governorate of Alexandria must form a team of scientists from the University of Alexandria to formulate a future conception of the problem and its solutions.

After presenting this issue from all standpoints, UKTUBAR urges the environmental protection agencies in the cabinet and the Governorate of Alexandria to take effective measures to confront the problem of the flooding of Alexandria before the city is covered with sea water.

ISRAEL

Comptroller's Report on Environmental Crisis Management Summarized

TA1505110690 Jerusalem *THE JERUSALEM POST* in English 15 May 90 p 8

[Report by Asher Wallfish]

[Excerpt] The preparedness of the home front for war, states of emergency, and for large-scale disasters, leaves much to be desired.

Dangerous substances used in modern industrial processes, or created as by-products and waste in the course of manufacture, have caused a considerable number of large-scale disasters in other countries in recent years. There are a number of areas in Israel with a high concentration of industrial plants handling dangerous substances, the comptroller reported.

The supervision of these dangerous substances, and readiness to cope with the dangers they present, are faulty. A large number of bodies are involved which do not coordinate their operations. Each body covers a narrow segment of the problem. Sometimes bodies duplicate each others' work. Sometimes the supreme authority is unaware of what the various bodies are doing in the sphere of dangerous substances.

The already meagre budgets allocated by each ministry for coping with hazards caused by dangerous substances are often wasted by duplication and lack of coordination. Plants which handle dangerous substances are entangled

in the bureaucratic webs of as many as nine separate official supervisory authorities.

Whereas the IDF [Israel Defense Forces] is responsible for all large-scale disasters on the home front in times of war and states of emergency, the coordinating responsibility in peace time is still being finalised. The proposal is to make the Environment Ministry responsible, but the necessary legislation has not yet been completed.

The comptroller drafted a number of specific demands, designed to improve preparedness:

- Experts employed by plants handling dangerous substances to be assigned to crisis duty rosters in advance on a regional basis, and ordered to make themselves available instantly to cope with disasters involving the materials with which they are familiar in the course of their work.
- Regional stores to be set up containing the necessary equipment and chemicals to cope with disasters, and financed by levies on the plants involved.
- Vehicles hauling the most dangerous substances to be escorted at all times by a second vehicle from the despatching plant with a plant expert aboard as well as emergency equipment.
- Designation and construction of ring roads around inhabited areas, to be used obligatorily by vehicles hauling dangerous substances, and enabling easy approach in case of disasters, to cope with the situation and evacuate the victims.
- Instructions for behaviour in case of disasters to residents living close to the relevant plants, with a view to reducing alarm and panic in the event of a disaster taking place.
- Formation of a special disasters unit in the IDF reserves, to be trained and equipped for cases in which the civilian authorities and the police decide to call in the military in peace time because of the scope and nature of the disaster, or which the IDF would anyway be expected to handle in time of war. [passage omitted]

Goskompriroda Chairman Vorontsov on Environmental Problems, Policies*AU2105214790 Vienna DIE PRESSE in German
21 May 90 p 13*

[Michael Lohmeyer report: "‘Monocultures Are Dangerous Everywhere’; Soviet Minister Advocates Variety”]

[Text] Bergen—"I instinctively support the Lithuanians; I think that the blockade was a mistake." Nikolay N. Vorontsov, Soviet environment minister [as published] and the first noncommunist government member, did not mince matters in an interview for DIE PRESSE on the sidelines of the European environment conference in Bergen in Norway. However, he is also against the separatist movement of this Baltic state: "The Balts were independent for only 20 years. During most of their history they were part of larger states."

The "political monoculture," which is breaking up slowly, sometimes too slowly, is as dangerous as "agricultural monocultures," he said. "In both cases we need pluralism and more openness."

Precisely the latter is indispensable for overcoming the consequences of Chernobyl: "We now have rather exact data on the areas and intensity of radiation. Sometimes the situation is more difficult than expected at first sight: In one area radioactivity can hardly be measured, while not even 1 km away the amount increases sharply." One million people live in the contaminated regions. Resettling them somewhere else is difficult: "We cannot build so many houses at one time."

Vorontsov, who calls himself an opponent of nuclear energy, nevertheless gave a negative answer to the question on whether the Soviet Union will stop using nuclear energy in the long run. "Soviet technology is equal to the West's. There are only difficulties in practice." Construction work is done in a slovenly way and safety regulations are not observed, he said.

The minister thinks that it is unlikely that new nuclear power plants will be built. "Like Andrey Sakharov, I believe that the greatest danger of nuclear power plants is not so much the breakdowns, but their vulnerability to sabotage and terrorist acts. Thus, a safe variant for the future is to transfer the nuclear power plants below the earth's surface."

At present, there are no plans for nuclear power plants; only planned plants will be completed—in most cases. "In some cases we stopped construction." According to Vorontsov, the unfinished building on the Crimean Peninsula will be transformed into a training center for the staff of nuclear power plants.

The environment minister also gives priority to improving the efficient use of energy. "I think that it is absolutely possible to save 40 percent of our energy, one-half by better insulating apartment houses, the other

by changing economic policy: We have too many tractors, which, in addition, are too heavy. We use too much steel."

Vorontsov sees himself confronted with many problems, especially with eight environmental problems "that have to be evaluated as equally urgent." He mentioned the Barents Sea first. "The sea is in danger of becoming a water desert because of excessive fishing." Problem number two is Chernobyl, he said.

He is also worried by air pollution in the eastern Ukraine and the threat to the Sea of Azov. North of the Caspian Sea air pollution is becoming a burning problem. The catastrophic situation at the Aral Sea is sufficiently known but it is nevertheless far from being solved. "We will build water conduits and curb cotton cultivation. Nevertheless, the sins of the past cannot be undone on one day."

Vorontsov mentioned water and air pollution in the Urals area and air pollution around the Siberian city of Novosibirsk as points seven and eight.

In addition to this enumeration, Vorontsov mentioned problems that appear all over the world and can be solved only by international cooperation—erosion and the greenhouse effect, which, for example, seriously endangers Leningrad. The minister thinks that the present instruments are inappropriate for dealing with worldwide problems. "Too many compromises are contained in these declarations and statements. The final statements are too bureaucratic. The people who are up in arms against them have good reasons for being dissatisfied with our work."

With an international government and an international parliament—both equipped with adequate powers—"variety in the biosphere and thus our own survival would be guaranteed." For, according to Vorontsov, variety guarantees the continued existence of the system—ecologically and socially.

All-Union Greens Movement Established*90WN0056B SOVETSKAYA KULTURA in Russian
21 Apr 90 p 2*

[Article by A. Budenny: "There Is Such a Party... These Are the Greens..."]

[Text] The movement is more imposing than stagnation. We were able to be reconvinced of that when we were present at a press conference that was held at the USSR MID [Ministry of Internal Affairs] Press Center. The topic was the creation of the All-Union Sociopolitical Movement "For the Rebirth of the Environment and Morality" (the Greens Movement).

"We do not ask anyone for anything. Those who respond to our appeal will be considered to be our comrades in arms, our partners, and our shareholders. We do not seek sponsors. On the contrary, we are ready to render all kinds of support, and primarily material support, to all

those who join our ranks and are ready to work with us in our projects, with our goals, under our banners." That statement is made in the movement's message. The movement has not yet been registered, but a constituent congress that was held on 6 April 1990 in Moscow indicated that there is an interest in the movement, and that interest is manifesting itself primarily at the major plants, factories, and other enterprises that can render assistance to the environment. As of today, the movement unites more than 40 major enterprises of union-wide importance. As movement chairman A. I. Chabanov, USSR people's deputy, said, "Poisonous clouds pour death-dealing rains onto our planet. Mothers feed their children food that has been poisoned by chemicals. Plague-infected nature, as it dies, takes vengeance mercilessly on us, by killing all living things. We call upon all the inventors to begin immediately to develop technological schemes and units that will enable us to purify the land of the filth resulting from the perverted striving for profit in industrial progress. If the companies that produce bottled water engage instead in purifying the rivers and the oceans, we, all the people on the earth, will pay them not only with our genuine gratitude, but also by the same measure of profit. Let us work together to finance the creation of solar-powered automobile engines and electric-power stations. If there is a high percentage of profit, the producer companies can perform miracles of resourcefulness and inventiveness."

Thus, it is proposed that, in the skirmish with profit, use be made of the most fearful weapon—superprofit. This year the movement has planned more than 100 separate actions to purify the environment, including the providing of assistance to Ufa.

I would like to think that the Greens Movement will prove to be not simply something that serves a need, but that, rather, is vitally necessary to our society.

Economist Sees Environmental Control Funding as Economic Stimulus

90WN0056D Moscow ARGUMENTY I FAKTY
in Russian No 17, 28 Apr-4 May 90 p 6

[Article by V. Maklyarskiy, candidate of economic sciences: "Ecology and Economy—13 Billion Is Not Enough!"]

[Text] At the 3rd Session of USSR Supreme Soviet it is planned to approve the State Plan for Environmental Protection. Therefore it is of indisputable interest to compare our efforts in this area with the foreign experience that has already been accumulated.

The following table was prepared on the basis of data provided by USSR Goskompriroda [State Committee for Environmental Protection] and the Economic Analysis Bureau of the U.S. Department of Commerce.

Expenditures for Environmental Protection in the USSR and the United States in 1987 (billions of dollars)

	total	including		
		air	water	solid waste
USSR	16.28	2.08	10.3	—
United States	81.06	31.8	32.5	16.7

In absolute terms, we expend for ecological purposes, at most, one-fifth of what the Americans expend (for converting the rubles to dollars, the domestic official currency-exchange rate was used). With a consideration of the actual, more realistic ratio between the purchasing power of the ruble and the dollar, that difference would have to be even greater. And yet, with regard to territory and size of population, we exceed the United States and therefore, according to logic, we should expend for environmental protection more than the United States does. The share of our expenditures for environmental-protection purposes in the country's national income is 1.6 percent, and in that of the United States, 2.2 percent.

Another situation that attracts attention is the difference in the structure of these expenditures. In the USSR and the United States, the largest expenditure item is current and capital expenditures to combat water pollution (in the USSR this is more than a half the total expenditures, and in the United States, 40.1 percent). But in the U.S. environmental-protection budget, the most dynamic item is the expenditures to eliminate solid waste and render them harmless. During the past decade these expenditures increased at the highest rates. But in our country that item is completely absent. And yet solid waste is the largest potential source of environmental pollution. We might also add that the Americans expend for scientific research and development in the ecological area every year \$2.3-2.6 billion. How much we spend for these purposes is unknown.

The basic weight of the environmental-protection expenditures in our country lies on the much-suffering state budget. But the chief source of the load placed upon the environment is the activity of enterprises. In the overall volume of capital investments in industrial enterprises in the USSR, the share of the investments intended for environmental-protection purposes does not exceed 2 percent, whereas in the United States it is 4-5 percent, and in Japan even more. On the whole, however, the private sector in the United States assumes exactly half of all the appropriations to combat environmental pollution. In the FRG [Federal Republic of Germany—West Germany] the share is 37 percent, and in England, 25 percent.

A result of the growing expenditures for environmental-protection measures was the formation in the western countries of an extremely broad market for ecological equipment and the arising of entire branches with a

multimillion turnover, that specialize in producing anti-pollution equipment. Thus, the ecological measures and the fight against the pollution of the environment are becoming a new factor in economic growth. In our country we do not yet have these branches or market for ecological equipment.

For 1990 the Soviet Union has allocated 13.3 billion rubles for purposes of ecological monitoring. But this is not the entire job. The satisfying of ecological needs, and the interests of preserving the environment, place on the agenda the question of the need to discontinue a number of production entities and to stop the production and use of definite types of output. In this regard, the ecological needs frequently conflict with the traditional material needs.

A definite amount of experience in preventing such situations exists in the western countries, although even here the choice between the environmental-protection interests and the satisfying of the current material needs remains extremely painful. We are talking first of all of the broad introduction of complete ecological-impact studies for all the economic plans being prepared and implemented. In addition, practically any citizen group has the right to dispute the desirability of these plans in the court.

However, the fundamental resolution of the problem of combining the ecological and economic goals, in the final analysis, lies in converting the entire national economy and introducing a fundamentally new model of use of the natural resources. The basic parameters of that model must be: the efficient placement of the productive forces; economical measures in the use of natural resources; and introduction and use of ecologically clean technological schemes everywhere.

Goskomgidromet Chairman Izrael Updates Chernobyl Radiation Aftermath

*90WN0028A Moscow PRAVDA in Russian 17 Apr 90
First Edition p 4*

[Article by USSR State Committee for Hydrometeorology Yu.A. Izrael: "Chernobyl-90"]

[Text] Another year has passed since the Chernobyl accident but the radiation environment (associated with its effect on people) and the reaction of the population itself to the situation remains complex.

During the past year a lot of material was published in this regard. An informational breakthrough occurred in this field. In May 1989 all the restrictions on publishing material on Chernobyl were officially lifted. A number of journalists had begun to raise controversial issues in the press earlier and our lengthy article on Chernobyl appeared in PRAVDA before May on 20 March 1989. As you recall, a lot of technical materials were published back in 1986 for passage to international organizations.

This particular article portrays the current situation and the events of this year (within the framework of the USSR Goskomgidromet's [State Committee for Hydrometeorology] competence.

The USSR Goskomgidromet first of all published information in the form of open brochures and maps about the radiation environment throughout the entire country where contamination levels were more than 5 curies/sq km; the area of this territory is 28 thousand square kilometers (and recently down to the level of 1 curie/sq km); data on thousands of cities and towns located within this territory as well as significant information on areas with lower contamination levels where measurements and research are continuing.

Separate brochures came out for the Ukrainian SSR, Belorussian SSR and the RSFSR. The average level of contamination (cesium-137 and strontium-90) for each town is indicated as well as the overall number of samples on which the figure was calculated.

Naturally, for many populated areas, especially large ones, this data is insufficient because even within the limits of one populated area the radiation levels can differ widely as a result of spotty and uneven contamination. For example, in the northern part of the Belorussian city of Bragin the local concentration of cesium-137 contamination is a little more than 1 curie/sq km, but in the southern part of the city, especially along the Braginok riverbed, the level is more than 40 curies/sq km. An analogous situation developed in the urban-type village of Poleskoye, where the contamination level measures from a few curies/sq km to a hundred and more, and in Narodichi, Narovl and a number of others. It is precisely in these populated areas where the most tense situations logically exist. Detailed diagrams (maps) have been compiled of these populated areas.

Nonetheless, major complaints have been directed towards the USSR Goskomgidromet regarding insufficient information; after all, the population wants to know more than just the "average" figures and to have not only a diagram of the contamination levels in the village. Each inhabitant wants to know the situation at the location where he lives, in his house, in his garden, on his street. And even though such detailed data are not required for a prognosis of exposure doses, the wishes of the population seem quite justified.

The USSR Goskomgidromet has vastly expanded its work; it has issued and published maps showing radiation contamination levels (especially beyond the limits of the high contamination zone - these rayons were taken care of in the very beginning) of different localities (not diagrams, but real topographical maps, the restrictions on the publication of which were also lifted) using typographical methods in the Belorussian SSR, Ukrainian SSR and the RSFSR. Excerpts from these typographical maps appear in the photographs included in this newspaper (of the most contaminated areas). Data about the radiation environment and maps of contamination levels are published by republic, oblast and rayon mass media organizations.

Brochures on all contaminated populated areas indicating the results of all measurements taken are being prepared.

The interdepartmental commission on the study of radioactivity continues to function regularly. This commission discusses data obtained by various organizations and coordinates their actions (after all the volume of work is very large; the number of samples already exceeds 200 thousand).

And although on the whole the radiation environment did not change very significantly during the past year, new information and new questions have appeared.

I will remind you that the USSR Goskomgidromet, in conjunction with the USSR and republic Academies of Sciences, the USSR and republic Ministries of Health, the Ministry of Defense, Gosagroprom and other departments, has conducted massive work beginning in the days immediately following the accident on measuring the radiation environment (in an area of approximately 500 thousand square kilometers), and has measured in even greater detail local contamination levels, the concentration of radioactivity in surface water and other natural environments by taking samples of certain isotopes, devoting special attention to the longer-lived isotopes, cesium-137, strontium-90, plutonium-239 and 240 and cesium-134. All this data was sent to supervisory organs in the center and in the republics, to interested departments and local authorities for necessary steps to be taken.

Before presenting the material from the most recent measurements and research, I will answer (or rather, repeat the answers) to the two questions mentioned most often in the press:

- how much radioactivity was released into the environment after the accident and what was the radiation environment in large cities and towns?

Concerning the first question, it is necessary to note that considerable amounts of radioactivity were released from the damaged reactor (after the first explosions or "backfires") for approximately two weeks and in describing this radioactivity, we need to correlate it to a particular date. Therefore, in the materials presented to the MAGATE [International Atomic Energy Agency] this level has been correlated to 6 May 1986 (approximately the end of the emissions).

Beyond the boundaries of the nuclear power station the average release of all radionuclides was (within the USSR) 3.5 percent of the overall quantity of decay products which theoretically had accumulated in Block 4 of the reactor during its operation (I emphasize that this percent refers to the radioactive products of decay and not to nuclear fuel. These are different things). More than 20 percent of iodine isotopes were released, about 15 percent of cesium-137 (taking into account the quantity which carried beyond the borders of the USSR). The average figure of 3.5 percent came about as a result of

direct measurements of decay products over the entire USSR, compiling those results and correlating that quantity to the amount which had accumulated in the reactor before it was destroyed. This is the objective reality and not an attempt to underestimate the danger as certain journals have stated. After all, it is the quantity of decay products which has created the radiation environment which we have observed, and it is not a minor amount; it is serious and dramatic.

The question about radiation levels in large cities and towns during the first days after the accident (the question was raised in connection with the possible or necessary evacuation of the population of various cities and large towns).

First of all in Kiev - average levels of 1.4 mr/hour were recorded on 30 April 1986 (maximum on Prospekt Nauki - 2.2 mr/hour); by evening the levels had decreased. On 1 May on the average they were 0.61 mr/hour; 2-6 May, 0.25 - 0.85 mr/hour; 7 May, 0.7 mr/hour; 8-14 May, 0.21 - 0.5 mr/hour; 15 May, 0.2 mr/hour and during the second half of May the levels were from 0.16 to 0.28 mr/hour. These levels were measured regularly by Ukrhidromet [Ukrainian Committee on Hydrometeorology] at different locations in the city and were presented in a timely manner to the Ukrainian Communist Party Central Committee, the Ukrainian SSR Supreme Soviet, the Ukrainian SSR Council of Ministers, Civil Defense Headquarters and other organizations. These levels were significantly higher than the background, normal, natural levels (approximately 100 times) but the statement in the press (MOSKOVSKIYE NOVOSTI, 15 October 1989) that these levels "exceed the maximum allowable limits by 100 times" is a gross error. These levels were significantly lower than the levels which led to the exposure doses established by the USSR Minzdrav [Ministry of Health] as the maximum allowable during the accident at the Chernobyl nuclear power plant (10 roentgens, or rads during the first year as a limit, above which the evacuation of the population is mandatory). This significant, in our view, measure of radiation contamination, 10 roentgens during the first year, with the type of contamination present, corresponds to a radiation level of 5 mr/hour on 10 May 1986; in Kiev on that day the level was 0.32 mr/hour. In other large cities the reading was (in parenthesis is the date of the maximum reading): Minsk - 0.06 mr/hour (1 May 1986), Gomel - 0.5 mr/hour (30 April 1986), Chernigov - 0.4 mr/hour (30 April 1986), Rovno - 0.125 (29 April 1986), Chernovtsy - 0.45 (2 May 1986), Brest - 0.06 (30 April 1986), Kishinev - 0.06 (4 May 1986), Chernobyl - 24 mr/hour (1 May 1986) (evacuated).

In Moscow and Leningrad there was essentially no increase in radiation levels as a result of the accident at the Chernobyl nuclear power plant.

Currently the strength of gamma radiation doses in Kiev is 0.013 - 0.018 mr/hour, Rovno - 0.013, Chernovtsy - 0.012, Gomel - 0.013 - 0.014, that is, they are close to background levels.

In 1989 the USSR Goskomgidromet, in conjunction with other departments, continued taking measurements in great detail of the radiation environment and the level of contamination in a large number of populated areas. The characteristics of the measurements at each point in time were dictated by the allowable radiation environment criteria established by the USSR Minzdrav. The main criterion during the first year after the accident was the inadmissibility of the population receiving a dose of 10 rads during the first year (5 rads from internal and 5 rads from external radiation). As was already noted, the measurements and research showed (and this was confirmed in practice) that this criterion (external dose) corresponded to the radiation strength isoline of 5 mr/hour which was calculated on 10 May 1986. In this way, the key mission of the radiometer and dosimeter operators was to locate this isoline, inside of which the entire population was to be evacuated (in addition, evacuation was carried out from the 30 km zone as well). Such a map was already submitted at the beginning of May 1986. Children and pregnant women were temporarily (until fall) evacuated from territory between the 3 mr/hour and 5 mr/hour isolines. Furthermore, to monitor food products, and consequently, to ensure that internal radiation doses were not exceeded, criteria were introduced on local contamination by long-lived isotopes; 7 and then 15 curies/sq km for cesium-137, 3 curies/sq km for strontium-90 (for limiting the internal dose through oral exposure) and 0.1 curies/sq km for plutonium-239 (for limiting the dose through inhalation).

In the period May-June 1986 these measurements were taken and corresponding maps were presented to the republics in August 1986; of course, first of all the areas where the contamination levels were above or close to the indicated values were studied. These data were passed on to the rayon level.

On the basis of the information presented, as well as maps on the isotope contamination, the decision was made whether it was possible to guarantee adherence to the criteria introduced by USSR Minzdrav (10 rads for the first year, 3 rads for the second year, 2.5 rads for the third year after the accident) in the zones where the population had not been evacuated but where the level of contamination by long-lived isotopes (there was especially a lot of cesium-137!) was high, higher than 15, 40 and in some places reaching 100 curies/sq km! Agriculture specialists and medical doctors (here I am already going beyond the competency of the USSR Goskomgidromet) came to the conclusion that the main criterion of limiting the radiation dosage for the population residing in these areas could be guaranteed by supplying the people in these places with clean (imported) food products in order not to allow an internal exposure dose which exceeded the external dose and by undertaking a number of measures in agricultural operations such as

liming the soil, applying calcium fertilizers, etc. As a result of this recommendation the decision was made in August 1986 not to evacuate people from these villages (with several exceptions, where the levels were especially high).

During these years the USSR Goskomgidromet conducted more and more detailed research of the radioactivity in the contaminated areas.

According to the results obtained in the second half of 1989 from air and ground research of the contaminated areas of the RSFSR, the Belorussian SSR and the Ukrainian SSR, there were no significant changes in the isolines indicating the level of local contamination by cesium-137 (see the maps), strontium-90 and plutonium-239, 240.

The areas which were contaminated by plutonium-239 and 240 isotopes at levels higher than the established criterion of 0.1 curies/sq km are concentrated inside the evacuation zone. Studies of the areas of the Mogilevskaya, Gomelskaya, Bryanskaya, Zhitomirskaya and Kievskaya oblasts outside the boundaries of the evacuation zone did not indicate the existence of populated areas with contamination levels of strontium-90 above 3 curies/sq km.

The strength of gamma ray doses locally is determined at the present time by the presence in the contaminated areas of the radioactive isotopes cerium-144, ruthenium-106, cesium-134, cesium-137, and antimony-125. The main contributors to the dosage level in the 30-kilometer zone are the isotopes cesium-134, 137. They account for more than 80 percent. Beyond the 30-kilometer zone, in the "cesium hot spot" area, the contribution of these isotopes is close to 100 percent.

As far as water contamination is concerned, during the 1989 spring flooding the concentrations of strontium-90 and cesium-137 in the Pripyat river (Chernobyl rayon) were 2.2 multiplied by 10^{-11} and 1.1 multiplied by 10^{-11} curies/liter respectively, in the Dnepr river (Teremtsa rayon) 0.5 multiplied by 10^{-11} and 1.0 multiplied by 10^{-11} curies/liter compared to allowable levels in accordance with Radiation Safety Standard-76/87 - 4.0 multiplied by 10^{-10} and 1.5 multiplied by 10^{-10} curies/liter respectively.

The main contaminating isotope in the rivers of the RSFSR and the Belorussian SSR whose water basins are located within the territory of the Bryansk-Gomel-Mogilev and Tula-Kaluga "cesium hot spots," (the Sozh, Iput, Besed, Plava, Zhizdra, Oka rivers as well as others), is cesium-137. The highest concentrations of cesium-137 were observed in the Sozh and Iput rivers and measure (1.5 - 2.0) multiplied by 10^{-11} curies/liter, which is three orders lower than the DKb [allowable rem concentration?].

We should note that in many rivers and reservoirs the bottom deposits have become contaminated. On the one hand, this is an indication of the purification of the water

by the settling particles, including dying particles of blue-green algae. On the other hand, the contaminated silt is mobile and can be a secondary source of water contamination and can be transported themselves along this part of the reservoir. Measurements showed that the levels of contamination of the reservoir bottoms in 1988 was: Kievskiy - 4.5 curies/sq km (for cesium-137), Kanevskiy - 1.4, Kremenchugskiy - 0.25, Dneprodzerzhinskiy-0.12, Zaporozhskiy - 0.08, Kakhovskiy - 0.07 (the overall amount of radioactivity was approximately 5,500 curies with an average reservoir volume of 43.8 km³).

According to measurement data, plutonium concentrations in the air at ground level even in the alienation zone (cities of Chernobyl and Pripyat) do not exceed 2 - 10 multiplied by 10⁻²⁰ curies/liter (the allowable concentration of plutonium in the air is 3 multiplied by 10⁻¹⁷ curies/liter according to Radiation Safety Standard-76/87).

In this manner, an analysis of all objective data on the radiation environment in the areas subjected to radioactive contamination as a result of the accident at the Chernobyl nuclear power plant demonstrates that the situation is stable but not satisfactory.

In order to characterize the overall area which was subjected to significant contamination after the Chernobyl accident, it is sufficient to look at the following table:

Area of Territory Contaminated By Cesium-137, Including the Evacuation Zone (sq. km.)

Republics	Contamination Ranges (curies/square kilometer)		
	5-15	15-40	More Than 40
Belorussia	10160	4210	2150
Ukraine	1960	820	640
RSFSR	5760	2060	310
Total	17880	7090	3100

The area of territory whose level of cesium-137 contamination is more than 5 curies/square kilometer is more than 28 thousand square kilometers.

The following table, which includes zones with the same ranges of contamination but which were not evacuated, presents a picture of even greater concern:

Area of Territory Contaminated By Cesium-135 Not Including Evacuation Zones (square kilometers)

Republics	Contamination Ranges (curies/square kilometer)		
	5-15	15-40	More Than 40
Belorussia	9830	3640	1160
Ukraine	540	350	200
RSFSR	5760	2060	310
Total	17130	6050	1670

Therefore, in an area of 1670 square kilometers with a cesium-137 contamination level of over 40 curies/square kilometer there are still unevacuated villages!

Up until now it was believed that providing clean food products for the population of these villages would keep from exceeding the established exposure limits (the criteria introduced by the USSR Minzdrav for the first, second, third and fourth years after the accident).

However, recently significant changes have taken place in the approach to evaluating the allowable exposure levels.

First of all, in connection with the end of the first 4-year period (or rather, before 1 January 1990) the USSR Minzdrav introduced a maximum "lifetime" exposure level of 35 rads, including the dose received in the previous period beginning with the accident. The concept was subjected to rather severe criticism both by many scientists, especially those from Belorussia and the Ukraine, and by the public (taking into account the fact that all the figures and maps at the present time have been published).

Secondly, it turns out that local authorities have not provided an uninterrupted supply of clean food products for the population everywhere that it is necessary.

Thirdly, the fact itself that in areas of high contamination levels the population (even if they are supplied with clean food products) cannot take advantage of local or their own production (forest resources, agricultural production including from their own plots), cannot help but provoke legitimate outrage.

It is unfortunate that the question regarding the allowable exposure levels, established by medical specialists and other scientists representing various points of view, was not resolved earlier but required years only to once again return to the proposal of evacuation (or in some places - the voluntary relocation) of the inhabitants of these areas.

But the fact remains that after the USSR Minzdrav elaborated the new criteria, introduced on 1 January 1990 with a maximum lifetime dosage of 35 rads (taking into account previous exposure) proposals were made in the republics regarding the evacuation of a number of villages where, on the one hand, there are problems in supplying the population with clean food products and also in conducting specialized agricultural reclamation work, that is, difficulties in conducting measures which could reduce the internal and external exposure doses to below the introduced lifetime maximum level of 35 rads. In this way, the social factor as well plays a decisive role in examining this issue. Therefore, taking into account radiation and the social factor, the USSR Goskomiidromet in 1989 coordinated the additional evacuation in the RSFSR of 31 villages, in the Belorussian SSR 85 villages and in the Ukrainian SSR 14 villages.

Taking into consideration the fact that in a number of areas, depending on the agricultural and chemical characteristics of the soil, the cesium-137 content of milk exceeds the standard established by the USSR Minzdrav even at contamination levels significantly below 15

curies/square kilometer (the level at which the consumption of locally produced food products is restricted), the USSR Council of Ministers and the VTsSPS [All-Union Central Council of Trade Unions] approved a resolution (No 886) on 20 October 1989 on the introduction of supplementary measures to strengthen the protection of the health and the improvement of the material situation of the population residing in the area subjected to radioactive contamination as a result of the accident at the Chernobyl nuclear power plant. In particular, this resolution grants relocation rights with corresponding compensation and benefits to families with children under the age of 14, pregnant women and individuals who, due to medical considerations, have been advised not to reside in those areas.

The republics have come up with a very important initiative - the creation of republic program to eliminate the consequences of the Chernobyl accident. The USSR State Commission for Extraordinary Situations and the Government Commission on Eliminating the Consequences of the Chernobyl Accident believe that such a program must be statewide (on the union-republic level) which will mobilize all resources, both of the center and the republics.

In these projects the republics are planning a broad (and therefore expensive) complex of measures. For example, representatives of the Ukrainian SSR believe that all families residing in areas with contamination levels higher than 10 curies/square kilometer may move to other places of residence with compensation payments for property and expenses associated with the move. In the very near future the state program mentioned will be reviewed at a session of the USSR Supreme Soviet.

In addition to the publications about the radiation environment already named (maps, brochures), the USSR Goskomgidromet has elaborated and sent to the republics proposals on a system to inform the general public about the radiation environment through the ispolkoms of the local soviets of people's deputies based on data from the USSR Goskomgidromet and other organizations. Operational data will be sent directly to the local organs by the network offices of the USSR Goskomgidromet.

Of course, in connection with the widespread publication of data on the radiation environment and for objective calculations and an analysis of the situation and in connection with the desire of almost all the inhabitants (especially from villages with rather high levels of contamination) to know the situation on their plot, in their house and on their street, more and more details of the surveys are needed. This desire is completely understandable but it requires an enormous increase in the scale of work. In addition, in recent years "new" points of contamination have begun to appear which are connected with the accumulation, concentration and arrival of additional radioactivity due to a variety of reasons. These include the accumulation of radioactivity in places where water drains from roofs,

the accumulation of manure where livestock is kept, the contamination by equipment brought in from "dirty" places (on wheels, on the working parts), the possible migration with surface waters and even the wind, and construction using "dirty" materials.

I will give two examples. Between June 1986 and December 1989, the urban-type village of Polesskoye was subjected to surveys twelve times and there were more than 600 samples taken to test for cesium. And one of them, a more detailed survey conducted by the Kombinat Production Association in the period August - November 1989, identified a number of additional hot spots which required the immediate intervention of "deactivators." And although, as was established as a result of thorough discussions at an interdepartmental commission, "data on cesium contamination levels in the urban-type village of Polesskoye obtained by teams of the USSR Goskomgidromet and the "Kombinat" Production Association under identical conditions of sample selection correlated closely" (from the commission records), the work of the "Kombinat" Production Association's UDK [expansion unknown], including a thorough house-by-house study of all dwellings, confirmed the thesis about the necessity of such a detailed investigation in the populated areas where the inhabitants are faced with independently resolving the question of whether to continue residing in that populated area or to relocate. As long as we are on the subject, we will note that this additional, detailed study in the urban-type village of Polesskoye cost the Kiev oblispolkom more than a million rubles and there are many villages where this kind of detailed study is required. Sufficient funds for the study of these villages are simply not available in the state program for eliminating the consequences of the accident. But perhaps the creation of special republic associations under the systematic supervision of the USSR Goskomgidromet and the republic academies of sciences will be required. In Belorussia the opinion exists that it is necessary to conduct detailed studies of all populated areas of the republic (including those in uncontaminated areas), and there are more than 20 thousand of them.

The second example is the city of Korosten. This city fits into the contamination zone of between 5 and 10-15 curies/sq km (for cesium-137) with average levels of 7-8 curies/sq km. These were the figures which were obtained as a result of several surveys conducted by the USSR Goskomgidromet along with geologists. However, during the past year sensational reports regarding locations of extremely high contamination levels have appeared. After very thorough measurements, areas of several square meters or several dozen square meters were actually found whose high contamination levels were a result of the reasons named above (drainage of water from roofs, the introduction of contaminated materials by vehicles and so forth). With the help of a deactivation program, urgently organized especially for the detoxification of such locations, the situation is becoming normal again. The average readings now in the

city are 6-7 curies/sq km for cesium-137 and the number of spots with contamination levels of 14-22 curies/sq km make up only 2.3 percent (data from the last survey over an even grid conducted by the USSR Goskomgidromet, the Ukrsevegeologiya [Northern Ukrainian Geological Commission] and the GO [Civil Defense] of the city of Korosten in March 1990 based on 342 samples for cesium-137).

Naturally, these kinds of effects can be found in other areas, for example, in Narodichi, in areas near busy highways and in zones of "spotty" contamination.

Taking into consideration that guaranteeing the health of the population residing in contaminated areas as well as the knowledge of the radiation environment in the future will be of particular importance, the USSR Goskomgidromet prepared a special program to obtain a clear and detailed picture of the environment with the assistance of sections of the USSR Mingeo [Ministry of Geology], the USSR Academy of Sciences, the Belorussian and Ukrainian Academies of Sciences, the Belorussian and Ukrainian Gosagroprom and other ministries and departments.

The portion of the program planned for 1990 provides for a detailed house-by-house study of populated areas beginning with the Kievskaya, Zhitomirskaya, Gomel'skaya, Mogilevskaya and Bryanskaya oblasts with the selection and analysis of tens of thousands of samples for cesium-137, as well as strontium-90 and plutonium. The "mobility" of cesium and strontium will also be continuously analyzed (from the point of view of getting into water and vegetation). After that the detailed "geography" of the study will be expanded and will lead to the compilation of a complete atlas of the radioactive contamination of the natural environs in the European territory of the USSR.

In conclusion I want to emphasize that since the first days following the Chernobyl accident the USSR Goskomgidromet has reported an enormous amount of information on the radiation environment and has monitored this work and has provided it to all interested organizations. The data has been utilized everywhere; by departments, by the authorities at different levels and now by the population. These are the maps with which you are acquainted as well as information in the broad sense of the word.

In its actions the committee never attempted to underestimate the danger from existing radiation. The USSR Goskomgidromet has provided and will provide objective, qualified information and that, unfortunately, will be needed within the zone of the Chernobyl disaster for many years to come.

Chernobyl Nuclear Power Station To Stay Open

*LD1105071690 Moscow Domestic Service in Russian
0300 GMT 11 May 90*

[Text] Today, the time limit expires for the cessation of operation of the Chernobyl Atomic Power Station,

which was set by the State Atomic Energy Inspectorate if the shortcomings uncovered there were not eliminated. These were uncovered one-and-a-half months ago during an over-all examination of the safety of the station. More than 150 violations of the safety instructions, technological discipline, slowness in the reconstruction of the power units, and so on were revealed. So, will the station be shut down today? No, our correspondent was answered by the State Atomic Energy Inspectorate. The station is working since both its administration and the ministry have eliminated the majority of the shortcomings uncovered. New monitoring time limits have been set only on some of the operations which demand a significant amount of time.

Moscow TV Addresses Chernobyl Disaster, Other Environmental Issues

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[Editorial report] Moscow Television in Russian in various broadcasts between 20 and 25 April 1990 reports on environmental issues in the USSR, focusing primarily on the Chernobyl disaster.

The 1700 GMT broadcast on 21 April carries an announcer-read TASS report "just received about an enlarged meeting of the USSR Council of Ministers at which issues associated with the further performance of a set of projects related to the post-accident cleanup at the Chernobyl Nuclear Power Station [AES] were discussed. As noted at the meeting, the safety and health of the people residing in the affected regions has been and remains the main problem. This is exactly the focal point of measures aimed at eliminating the consequences of the accident in the immediate future and in the long run.

"Following an exchange of views," the announcer goes on, "the USSR Supreme Soviet Presidium approved the republic programs of eliminating the consequences of the Chernobyl disaster on the territory of the Belorussian and Ukrainian Republics and the Russian Federation. A proposal of the USSR Council of Ministers State Commission for Emergencies to adopt two programs—a state program of urgent measures for eliminating the consequences of the accident for 1990 through 1992 and a long-range program—was also endorsed.

"The state program of urgent measures provides for continuing work on the resettlement of residents, improving medical services to the people affected by the impact of radiation, providing uncontaminated foodstuffs for the populace, and enhancing social protection of the people affected, especially the children and the elderly. With a view to improving medical services to the populace, it is planned to augment the material-technical facilities of treatment and scientific-research establishments, to expand their network, to set up a special system for monitoring the health status and recovery of the populace, and to assign additional highly trained specialists for work in these areas. It is planned to allocate 16 billion rubles [R] for carrying out this program.

"As far as the long-range program is concerned, the Presidium of the USSR Council of Ministers has instructed the USSR Council of Ministers State Commission for Emergencies, the USSR Gosplan [State Planning Committee], the Councils of Ministers of the union republics, and the USSR Academy of Sciences to develop a plan in cooperation with the organizations concerned on the basis of the accomplishments of national and world science. It is expected that the most prominent Soviet and foreign scientists and specialists will be invited to take part in developing the program.

"A decision has been made to set up a special subdivision for organizing the implementation of the programs adopted within the USSR Council of Ministers State Commission for Emergencies. It is intended to set up similar subdivisions in the RSFSR, the Ukraine, and Belorussia, and a proposal of the RSFSR Council of Ministers to set up a republic scientific center for radiation medicine in Bryansk was approved.

"The government is submitting a program of urgent measures aimed at eliminating the consequences of the accident at the Chernobyl AES for consideration by the USSR Supreme Soviet. Chairman of the USSR Council of Ministers Nikolay Ivanovich Ryzhkov spoke at the meeting of the presidium and was also its chairman," the TASS report concludes.

The 1400 GMT broadcast on 22 April contains a commentary, read by an announcer, on the approaching anniversary of the Chernobyl disaster. "Now that we have gained access to information which was previously banned or just concealed," the commentary says, "the scale of Chernobyl turns out to be global, and the impact of the catastrophe turns out to be multifaceted and long-term. I will give you just one figure: More than 3 million people live in the contaminated areas of the Ukraine, Belorussia, and Russia. All of them must be helped."

The commentary says this is the reason the USSR Council of Ministers has adopted a unified program of eliminating the consequences of the accident, "all the more so, comrades, because few of us are aware that not only the lands of the Ukraine, Belorussia, and the Bryansk area have been affected by the Chernobyl catastrophe, but also the lands of Orel, Kaluga, and Tula...." The audio fades into the following segment.

Correspondent T. Komarova conducts an interview with two sales clerks who complain of ailments which, as the correspondent implies, have been caused by the accident. The complaints include difficulties swallowing food and pains in the extremities. The video shows scenes of village life and rural landscapes.

Komarova says: "It turns out that the volume of funding for the resettlement of one person in the Ukraine is R120,000, in Belorussia—R45,000, and in Bryansk Oblast of the RSFSR—R20,000. This is based on the data of a panel of experts. It turns out, for example, that calculations for Bryansk Oblast were made proceeding

from the cost of one square meter of residential space in the city of Bryansk, disregarding the fact that single-family dwellings on lots will be built in a green-field location where roads need to be put in, the land needs to be developed, and sheds for keeping animals need to be built."

The correspondent goes on to interview the deputy chairman of the Bryansk Oblast Executive Committee, F.D. Gorbakov. The latter states: "When we were compiling the resettlement program, they gave us the run-around in the ministries and offices." He gesticulates to indicate running in circles. "Every figure had to be coordinated with one ministry or another, and every ministry tried to cut it back somehow." "As of now, the funds allocated are virtually not backed by material resources." Gorbakov shows the correspondent a map presumably indicating the zones of contamination in Bryansk Oblast. Komarova observes that until May 1989 information on the zones of contamination was classified "secret" in the RSFSR, a fact which made it easier to withhold aid from those who needed it.

The video shows cottages under construction, and Komarova says: "According to the initial data of the Goskomgidromet [State Committee for Hydrometeorology], in Bryansk Oblast, for example, there were only 11 contaminated localities; later, it turned out to be 68, then 180, and at present—275. As far as the Tula-Orel-Kaluga area is concerned, someone to this day is hiding his head in the sand as if he were unaware that there, as well, it is between five and 15 curies per square kilometer." The correspondent says that the Russian Federation also needs the aid envisaged by the government decisions.

Later in the same telecast the announcer introduces a report by D. Baimbetov and V. Karavayev on the "Aral-90" International Round Table, which has just adjourned in Aralsk, Kzyl-Orda Oblast. The video shows a conference hall during the roundtable proceedings. UN experts, representatives of public committees for ecology, scientists, and writers from nine countries have come to the disaster zone. The chairman of the UNESCO Scientific Section, an Austrian, is shown speaking in English with Russian translation superimposed; the interview takes place in a room full of maps, graphs, and charts. He says: "The issue of the Aral Sea is a very serious one. It needs to be resolved radically. Not only must we try to maintain the current level, but we must radically improve the status of the sea. As far as international assistance is concerned, organizations such as the United Nations, UNESCO, and the International Organization for the Preservation of Lakes, which is headquartered in Japan, wish and are able to render real and tangible assistance to the Aral Sea."

The first deputy chairman of the Kazakh SSR Council of Ministers, Z.Kh. Gukasov, is interviewed in the same room. He says: "I believe that a radical decision should provide for resuming the project of diverting Siberian rivers to the area of the Aral Sea." The video cuts away

to the flags of countries represented at the round table. "The position of the Government of Kazakhstan," Gukasov goes on, "is that the USSR Government will be asked to return to resolving this issue. There is still no alternative to this variant and this solution, nor is there going to be one. The first stage of the projected diversion amounted to merely 25 cubic kilometers out of the 400 which at present flow through this location on the Ob River. All that amounts to is five or six percent, no more," he says. "Therefore, any loss there is out of the question."

Following the interview, the correspondent expresses his doubts about the beneficial effects of interfering with natural processes through the water diversion project and indicates that other opportunities to alleviate the situation are available—a different crop mix and improved water-management practices, for instance.

The 1700 GMT telecast on 22 April includes an item on the significance and history of Earth Day, noting that it has been celebrated in the United States for 20 years. The video shows "the prominent French scientist and traveler, academicien Jacques Yves Cousteau" making a statement on the occasion of Earth Day in English in front of a large globe. A Russian rendering is superimposed, stating that the current decade will be decisive and crucial for the very survival of humanity; political decisions by the entire community of nations are necessary in order to solve environmental problems.

In the following item the announcer introduces a report by V. Zvyagin and S. Shishkin on environmental problems (specifically, smog and acid rain) in the United States and the recently adopted legislation aimed at remedying the situation. The video shows street scenes, highways with heavy traffic, and industrial landscapes with smokestacks.

Zvyagin says: "The last time American legislators took major steps to combat environmental pollution was in 1977. Several days ago, the U.S. Senate passed by an overwhelming majority vote a bill providing for substantially stricter measures for controlling air pollution. The bill provides for allocating an additional \$20 billion for carrying out this program." The video shows the Senate in session, Senators Mitchell and Byrd taking the floor, and Vice President Quayle—none of whom are identified in the report. The results of voting on the bill are also shown without comment.

The correspondent reviews individual provisions of the bill affecting industry and environmental requirements for cars. V. Zvyagin, shown standing on a busy street in the United States, says: "Despite the critics of the program maintaining that its fulfillment will bring about the closure of a number of large enterprises and considerable new expenditures funded from the state coffers, both the Congress and the U.S. Government intend to ensure that all points of this program are fulfilled. As President Bush said recently, at issue are the health and future of the entire nation."

Announcer A. Laptev says during Moscow Television's 1440 GMT cast on 23 April that three, or even two decades are a critical time for a metallurgical enterprise because the obsolescence and amortization of the equipment are supplemented by "the age and technological conservatism of the backbone of the labor force." Laptev reports that these conditions have been successfully overcome at the Ust-Kamenogorsk Titanium and Magnesium Combine, which has been in operation for a quarter of a century now. This is due to the psychological environment prevailing at the plant and the readiness of the work force to accept innovation.

He says: "The people of Ust-Kamenogorsk were the first in the industry to develop and implement a continuous method of operation of super-high capacity magnesium electrolyzers which not only reduced the cost of production considerably, but also improved the ecological situation. Suffice it to say that the discharge of chlorine dropped by a factor of 3.4. The equipment for the distillation and regeneration of titanium used here may also be called unique. Its capacity exceeds that of standard pieces by an entire ton, whereas energy consumption remains the same." The video shows various pieces of plant equipment, furnaces, red-hot blanks being transported by overhead cranes, and control consoles.

Laptev interviews the chief engineer of the titanium and magnesium combine, B. Shayakhmetov, who indicates that environmental concerns will be central to the future five-year plan—1991-1995. Shayakhmetov says: "It was this comprehensive approach to resolving issues that allowed us to sharply reduce emissions into the environment in these years. With the production of porous titanium growing by a factor of 2.2, the emissions of chlorine were reduced by a factor of 3.4"

The broadcast continues with a report from Tomsk Oblast on the contribution oil extraction workers make to the preservation of the environment. An announcer provides the background: A new oilfield in the Igol area of Tomsk Oblast has been prepared for development. However, representatives of the local Northern peoples—the Selkup, the Khanty, and the Evenki—object to the beginning of industrial operations.

Gennadiy Chudnov reports that an oil pool has been found in a remote segment of the Vasyugan taiga, in an increasingly rare pristine environment. The area includes a protected beaver habitat and abounds in other fur-bearing animals; hunting, fishing, gathering wild berries, etc. sustain the indigenous population. A video of natural landscapes accompanies the narration and then shifts to oil wells.

Ye.A. Poseryugin, deputy chief of the Vasyugan Oil and Gas Extraction Administration, is interviewed in an outdoors setting, with a freshly laid pipeline in the background: "The association has made a decision—we will pay 1.5 million in compensation this year. Say, this is the money for all this small game to be removed to new regions where, so to speak, humans have never set foot.

In the future, the Tomskneft association will provide practical aid by allocating additional funds for ecological issues, ah, which arise in connection with our work over there."

Chudnov says the oilmen have a vested interest in this area, having invested R150 million in developing it, laying pipelines, and building a hard-surface road, disrupting the natural environment as they went. The video shows scenes of oilfield development and road construction.

RSFSR People's Deputy G.S. Zhukov, shown speaking indoors, offers a counterpoint: "At present, our approach should be different; the millions invested in preparing the oilfield are not an argument in favor of beginning its operation quickly regardless of everything. A detailed study by experts is necessary in the process of which the opinion of local residents should be taken into account, and not only the Northern peoples but all those who live there. Ecological issues are acute there. I believe that only following a profound study of this issue can a final decision be made."

An item in the 1700 GMT cast on 23 April opens with an announcer saying: "Again, we touch on the issue of Chernobyl in our program. The catastrophe at Chernobyl Nuclear Power Station occurred against the background of the lack of legal protection for our people and our land. There are no laws on the responsibility of the state to individuals and that of the ministries and officials to the state, the land, and the people. This is what the experts who examined the state programs for eliminating the consequences of the accident note."

With the video showing the Chernobyl Nuclear Power Station immediately after the explosion, correspondent T. Komarova says: "We are going to recall these frames with horror in the days of spring preceding May Day, and apparently for many years, as well as reports in the mass media—at first, about the accident at the Chernobyl AES, subsequently about the measures taken to eliminate its consequences, and later about May Day parades in the cities where people could not remain outdoors, and then about the heroism of cleanup workers who are now confined to hospital beds. Four years have passed since then. A program of eliminating the consequences is under discussion once again. The cleanup workers are forced to make their presence known once more."

The following interviews with former cleanup workers are shot in hospital rooms. The video shows medical personnel conferring with patients or going about their duties.

Cleanup worker V. Naydenov is shown sitting on his bed wearing sweat pants and a shirt. The correspondent observes that he appears to be overweight. "I will tell you frankly that I am not asking for anything above and beyond," Naydenov says. "I demand what is mine, what I am entitled to. That's all."

Komarova: "He has acute radiation sickness, second degree in severity. In the course of post-accident cleanup in Chernobyl, he was exposed to 203 roentgen. He is asking for grain and also for coal to heat his house, and through the Supreme Soviet at that, because it would not be given otherwise. The cleanup workers feel that they are not only sick, but are also being treated unfairly. They were forced to go on a hunger strike in order to attract attention to themselves; the strike was discontinued in anticipation of the decisions promised by the USSR Supreme Soviet." The video shows a party of medical personnel visiting a hospital room with at least three hunger strikers in their beds; subsequent interviews take place in this room.

The video cuts from one hunger striker to the next in mid-sentence; except for the first hunger striker, they have difficulty speaking; the second hunger striker shown appears emaciated.

First hunger striker: "You see, the status of Chernobyl is one of our important demands."

Second hunger striker: "...so that we are somehow equated with disabled veterans or veterans. Those who participated in the elimination...like a war veteran, and a disabled person—like a disabled veteran, with all the ensuing consequences, or..."

Third hunger striker, who appears to be Asiatic: "...on 26 April, on the day the station exploded, a meeting dedicated to the memory of those who perished in Chernobyl will be held and then, at the meeting, we will discuss the actions we are going to take..."

Komarova: "Immediately following the hunger strike, certain changes occurred in the Kharkov Institute of Medical Radiology. An expert panel that grants preferential status has been created. Previously, one had to go to Kiev from anywhere in the republic and wait there for months in order to be examined." One of the hospital staff members displays an order of the Ukrainian SSR Ministry of Health, presumably to this effect. "Therefore, this makes their thorny path easier, but only a little. Subsequently, they go to the social security department, and a letter goes to their enterprise which, as a rule, refuses to pay, saying—and rightly so—that the accident did not happen there. This is just one example. Having finally grasped the scale of the disaster, let us also realize the degree of gratitude we owe these people."

Moscow Television at 0830 GMT on 25 April reports on the continuing proceedings of the third session of the USSR Supreme Soviet.

Correspondent Tsygankov begins the report: "A unified government program for eliminating the consequences of the accident at the Chernobyl Nuclear Power Station was considered in the Kremlin today at a joint session of the chambers. Four hundred three members of the Supreme Soviet and 73 USSR people's deputies are taking part in this discussion. A sharply critical analysis of the work done was made in the report of Deputy

Chairman of the USSR Council of Ministers Vitaliy Khuseynovich Doguzhiyev. Referring to the debate on permissible doses of radiation accumulated by a person during his lifetime and the decisions of the government concerning this, he said, among other things:

A recording of Doguzhiyev's remarks follows: "At this stage, until we work out a concept of safe residence, we need, first of all, to resettle all those whose individual dose has come close to 35 rem; all those whose individual dose may come close to 35 rem within several years should be resettled within two to three years; families with children under 14 and pregnant women need to be resettled from the zone of strict control. Other residents should be given a right to freely decide where they want to live. In the course of this, benefits and preferences should be established for those residing on contaminated territories with a density of contamination from 15 to 40 curie, from five to 15 curies, where uncontaminated foodstuffs produced locally are impossible to obtain. Certainly this is an intermediate decision in order not to stop and to keep advancing. Certainly we need to adopt a grounded, universally acceptable concept of safe residence, with foreign specialists also participating.

"It is the opinion of the government that two programs are required: one for providing urgent aid to the residents of affected regions designed for the 1990-1992 period. The second program is long-term in nature and its outlook, taking the appearance of new factors into account, is longer."

Tsygankov: "The following individuals offered their assessments and conclusions regarding the government program for Chernobyl: for the Committee for Issues of Ecology and the Rational Utilization of Natural Resources—Deputy Salykov, as well as representatives of the Ukraine, Belorussia, and the Russian Federation." The video shows the individuals identified. "More than 60 people registered to take part in the debate."

Continuing reportage on the Supreme Soviet session, correspondent Grigoryeva says on the 1430 GMT cast on 25 April: "A unified state program for the elimination of the consequences of the Chernobyl accident was discussed today at the joint meeting of the chambers of the USSR Supreme Soviet.

"Certainly, at past meetings of the Supreme Soviet we have already heard about the actual state of affairs in the affected zones, and have seen this in reports on our newscast. However, when Deputy Doguzhiyev, chairman of the State Commission for Emergencies, began giving figures and examples of the consequences of the first such accident on earth, the audience still fell silent.

"It is frightening that in three republics more than 144,000 hectares of fields were taken out of commission, that it is impossible to use forests on 492,000 hectares, that losses of fixed assets have exceeded R900 million. However, can the sacrifices of the people be measured—

the life and health of entire generations? After all, we will no longer be able to literally "eliminate the consequences" of the accident even if we resettle the people, restore their health, and provide new housing for them. We will go to another territory having lost this one for decades to come. The overall amount of the necessary expenditures which the country is facing as a result of the accident exceeds R9 billion. However, we have a duty to shoulder these expenses even if we have to give up some other plans. The government program consists of two parts. One part is a long-term one, designed for a longer outlook. The other includes the most urgent measures taken as early as this year and up until 1992."

The Doguzhiyev recording used in a previous segment is repeated.

Grigoryeva continues: "Sixty-five people have registered to take the floor. I am not going to quote their bitter words about the time lost and the criminal unconcern of the government, the scientists, and the medical experts who have concealed the truth about our common woes. I will enumerate their main suggestions: the head of the committee on ecology, Salykov—to give the victims of the nuclear accident the rights of disabled veterans; to establish the genuine scope of the disaster and inform the public of it—Deputy Masyuk; to share transportation and construction potential with the victims out of charity rather than under a plan—Deputy Kichkaylov; to adopt a law on nuclear safety and familiarize our public with the degree to which our nuclear power stations meet international requirements—Deputy Tubeyev.

"Writer Belov asked whether this form of energy was the kind necessary for us and demanded an all-people's referendum. Many deputies proposed to take the money for helping the victims primarily from those who are at fault—from the power industry, from those whose industry is being cut back, from the Ministry of Defense; they proposed to set up a special committee for Chernobyl affairs and for our entire community to help those in need. They demanded that there be no procrastination.

"In general, while adding to the government program, the deputies, of course, came out in favor of adopting it. Ending my report on the work of the session today, on the eve of a tragic day for our country, I would like to recall: Adopting a resolution, a program, or a law means taking half a step; the main point is to carry them out. It is exactly this that we would like our deputies to remember."

The report is followed by an announcement that a charity marathon will be held on Soviet TV, Second Program on 26 April with the proceeds benefiting the victims of the Chernobyl accident.

The 1700 GMT telecast on 25 April carries a report by I. Minayev and N. Dubov on a press conference held by USSR Supreme Soviet deputies from the Commission for Protecting the Health of the People and the Commission for Ecology and the Rational Utilization of Natural

Resources held during a recess in Supreme Soviet deliberations on Chernobyl. A correspondent questions the need for secrecy immediately after the accident and the feasibility of keeping settlements and continuing economic activities in the contaminated zone at present. "Who will be held responsible for this?" the correspondent asks.

In the words of the correspondent, the deputies noted that "the main cause of the existing situation is found in the catastrophe and its scope not being evaluated correctly in the beginning. It was not considered to be a global ecological calamity. Even now, the process inside the sarcophagus has been localized, but it is still premature to say that the situation is completely under control."

An unidentified correspondent on camera: "To your mind, what is the future of the Chernobyl Nuclear Power Station?"

The video cuts to USSR People's Deputy Yu.N. Shcherbak, who responds with a slight Ukrainian accent: "At a session of the Ukrainian Supreme Soviet, a decision in principle has already been made to set up a commission which would consider comprehensively the issue of closing down the Chernobyl Nuclear Power Station. However, this issue needs to be approached very skillfully. Simply pushing the button and shutting down the reactor will not accomplish anything. To this end the reactor needs to be unloaded; its fuel is highly radioactive; all of these are very complex technical problems. Overall, there has been no precedent in the world for this urgent, emergency kind of closure and decommissioning of the station. This is why a commission will be created to consider these issues."

Moscow Television on 26 April continues its reportage on the Chernobyl anniversary.

In the 0830 GMT cast an announcer says that today the Soviet Union and the world are marking a day of memory and mourning for the victims of Chernobyl, and today Vremya will conclude a series of reports by its special correspondents from the disaster zone. File footage previously used on 22 April is included and two sales clerks are shown complaining about their ailments caused by the accident.

A video report by T. Komarova, A. Zhuk, and A. Zubov shows a sanatorium building and indoor medical facilities, medical personnel examining patients, and children at play, one child in bandages. "These children have leucosis. They need hematological centers, they need housing in uncontaminated zones, medical screening facilities, and this kind of clinic. It cost our camera crew a lot of effort to make these children merry. However, they did start playing, and the illnesses were forgotten for the time being.

"This is the former sanatorium of the Fourth Administration [of the USSR Ministry of Health] 'Aksakovshchina.' It has become a clinic of the Scientific Research

Institute of Radiation Medicine of the Belorussia Ministry of Health. Conditions here are good. It is not only the doctors who offer treatment here, but nature itself." Some outdoor scenes are shown. "There is just one 'but': Considerably more children need this type of help than the former sanatorium is able to hold."

An interview follows with V.S. Lipskiy, chairman of the board of the Children's Fund of Belorussia; the interview is shot indoors with physicians of the sanatorium seated next to Lipskiy and the correspondent, but not taking part in the conversation.

Correspondent: "Here, they offer treatment. What about medical screening?"

Lipskiy: "In our republic, we have but one screening facility for the entire republic—in Minsk, on Kommunisticheskaya Street. Its capacity, as they call it, is such that in a day, in 24 hours, it can handle 100 children."

Correspondent: "Can you do something in your capacity as the Children's Fund?"

Lipskiy: "We have this program, The Children of Chernobyl, and we want to open our own screening facility, an all-union anti-Chernobyl facility."

The correspondent observes that Belorussia will not be able to cope with the situation alone, and that she finds the following statement striking.

Statement by Doctor of Chemical Sciences O.I. Shadyro made to a male correspondent and filmed in an outdoor setting: "An organization as influential as Medecines du Monde, which offers aid in virtually every corner of the globe where the life and health of the people are threatened, is unfortunately unaware of these issues. It was, well, strange to hear that people want to help and can help—they helped in Armenia, they are ready to get in touch with nongovernmental organizations, and since in our country's nongovernmental organizations do not have such powers, to get in touch with the government and offer their services."

The video cuts away to a bus with a group of people in front of it.

Female correspondent: "We have been silent for too long. This may be the time not only to stop being ashamed, but to accept help and even to ask for it."

The next report in the broadcast notes that a telethon scheduled to last 24 hours is currently underway in the Rossiya Concert Hall in Moscow. It is being broadcast live on the Second Program of Soviet TV, and Vremya will broadcast live from the concert hall.

TV correspondent Aleksandr Gurnov "for the TV News Service—special to the Vremya program" is shown standing in front of a computer work station in the concert hall; singing is heard in the background throughout the broadcast. Gurnov says: "Moscow, the Rossiya Cinema and Concert Hall. You know, I was even

somewhat surprised. As you can see, the hall is not packed, there is no crowd of people or a traffic jam in front of the entrance; nor is there a militia cordon. Apparently these marathons have not yet become an element of prestige in our country, but they have already become a good tradition.

"I have just learned here at the computer: R22.3 million has already been donated to the telethon fund, as well as \$757,000. This is a lot of money. All of this money will be transferred to those who need such aid in the disaster zone. These data are becoming obsolete with every passing minute. I have just been handed a telegram saying that the Minsk Training and Production Association of the Society for the Blind has donated R1 million, another R1 million to the telethon fund. Therefore, it stands at more than R23 million. Meanwhile, the telethon is just at the halfway point."

"Thus, what are the people involved in here?" The video cuts away to a rather dimly lit stage with a performance going on. "Simply put, they put those who need help in touch with those who can provide such help. Here is just one example, a telegram from the Vudin family in Krasnodar Kray: 'In these four years, we have not been able to make our cries for help heard at any echelon. We watch with amazement TV reports about treatment measures for children. Where is all of this to be had? This terrifying indifference makes one want to scream.'

"Here is another telegram: 'We invite a family of three to reside here. There is an opportunity to provide housing for a year to a year-and-a-half. The Demidovs, Khabarovsk Kray.' This is how the telethon works. One-half of this event is already behind us. It began at midnight, and now it is slightly past 12:00 noon."

Since the broadcast is on the First Program at this time, the numbers of accounts for donations (including one in the Bank for Foreign Economic Operations, presumably for hard-currency contributions) is provided on screen for those who do not receive the Second Program but would like to make a donation.

Announcer: "I will add to this that rallies will be held today in Minsk and Kiev on the occasion of the fourth anniversary of the tragedy at the Chernobyl Nuclear Power Station. Our subsequent newscasts will include several reports devoted to them. It is natural that the topic of Chernobyl was also touched upon at the session of the USSR Supreme Soviet the day before. A program of measures for eliminating the consequences of the accident was discussed. The deputies adopted the state program of urgent measures for 1990-1992 submitted by the USSR Council of Ministers as the priority stage of a long-range program."

In the 1430 GMT program an announcer reminds viewers that a telethon benefiting the victims of Chernobyl has been underway for 18 hours and a live update is given by Aleksandr Gurnov from the Rossiya Cinema and Concert Hall.

Gurnov: "Moscow, the Rossiya Cinema and Concert Hall. This is the 19th hour of the grandiose telethon. According to the latest data just received from the computer, R53 million rubles has already been collected, as well as \$2 million. England, France, Belgium, Cyprus, Turkey, Japan, Hungary, the Netherlands, the United States, and Sweden are among the countries which have taken part in donating funds for the victims of the Chernobyl accident. I do not see Canada among these countries, but a representative of Canada who performed here, at our telethon, has just come down from the stage. Her name is Patsy Gallant; she is the host of a major musical TV program in Canada and the winner of several gold and platinum records, a well-known Canadian singer."

Gurnov continues in English followed by translation into Russian: "What brought you here to Moscow? How did you happen to get here?"

Gallant speaking in English; translation into Russian follows: "Actually, I was very lucky. I came through a friend whose name is Viktor Melnikov. Natalie and Viktor Melnikov—they organized a telethon in Canada called Le Don des Etoiles, which brings all the dancers from all over the world, and it is a telethon for osteopathic reasons; it's for children, it is for sick children. And he knows me, and he asked me, 'Would you like to come to Russia and sing?' and I said I would love to."

Gurnov asks if Gallant would like to say something in French or another language, and she proceeds to make a statement in French praising Soviet organizers of the telethon and the Soviet public. A translation into Russian follows; numbers of bank accounts for donations appear on the screen.

Programming on Chernobyl continues in the 1700 GMT broadcast. The announcer says that the effects of Chernobyl still go on. Almost 4 million people reside in the contaminated area, and 260,000 of them need to be resettled urgently.

A report by V. Lyaskalo opens with the sound of bells while the video shows a crowd in front of the St. Sophia Cathedral, yellow and blue flags of the Ukraine and banners flying over the crowd. A party of clergy on a platform is shown, as well as passers-by looking at the ceremony from behind barriers; no militia is in evidence.

Lyaskalo: "Today is a day of public mourning in the Ukraine. In all cities and villages, the memory of the victims of the Chernobyl disaster is being honored. A ceremony of remembrance was held in Kiev. Thousands of citizens of Kiev gathered in front of the Cathedral of St. Sophia. Among them are many former residents of Pripjat and Chernobyl, cities which are now dead. Many of them worked, or work at present in the zone of the Chernobyl Nuclear Power Station. Foreign friends, those who are offering a helping hand to our people, have also come to the square. All were united this evening in their speeches, prayers, and thoughts during the sorrowful minute of silence."

The video focuses on a banner and then moves on to the clergymen on the platform. Lyaskalo continues his narration: "These are the words with which the religious figures of the Ukraine have appealed to the people on this day: 'A severe trial has befallen us. Like a sting, it will continue to test our patience and faith. May God prevent our hearts from becoming embittered in the course of this so that the trouble will not prompt us to seek revenge and bring the peoples apart, but on the contrary will unite all the people through repentance on the way to virtue.'"

Announcer: "In Minsk, the anniversary of the Chernobyl disaster was marked by a requiem-rally, and at night about 50,000 candles will be lit."

Another announcer reminds viewers that the Chernobyl telethon, in the course of which both Soviet and foreign donations are being solicited, has now been underway for 21 hours on the Second Program. Aleksandr Gurnov will give an update on the telethon. Aleksandr Gurnov from the Rossiya Concert Hall; the words "live broadcast" appear on screen: "This is the 22d hour of this live broadcast, the 22d hour of music, a dialogue of scientists, TV reports, investigations by journalists, and new data on the scope of the Chernobyl tragedy. New donations keep arriving. By now, donations to the telethon account have come from 15 countries; it is being relayed by satellites to almost the entire planet."

"In Australia, where the signal from Moscow is not picked up, a parallel telethon is underway which was organized by our fellow countrymen. There, a tremendous sum of money has also been collected. A total of \$4 million has been collected in currency." A list of names follows, some of which are unintelligible, drowned out by announcements in the concert hall.

"However, these names are not the most important point; hundreds of thousands of your telegrams with your donations are. These small donations—a ruble, or several rubles have come together with the contributions of ministries and offices, actors and poets, in order to come to a tremendous sum. By this hour, R64 million has been collected for the relief fund of Chernobyl victims. We should also say that not all of this amount consists of money, but a very large segment is represented by specific goods, medicines, and instruments."

"The main task of the telethon is to put those who need help in touch with those who can specifically provide it. In the first half of the day, there were more telegrams here, at this table, from those who are in the disaster zone, whereas by now more and more telegrams are arriving with responses to these requests, with specific proposals. The organizers of the marathon are confident that 300 million people are capable of helping the 3 million of those who now reside in the disaster area."

"We would like once again to recall the number of the account to which money can be donated because the telethon will last another two and a half hours live on the Second All-Union Program." The account number

appears on the screen. "At the same time, I would like to hope that at midnight the screens of TV sets will be turned off, but the marathon of our charity will not cease. I will wrap up by reading a telegram which I have just torn off the teletype, an urgent telegram from Norilsk: 'People, thank you for everything. I am dying. Senior Sergeant Aleksandrov.'"

RSFSR Council of Ministers Reviews Draft Chernobyl Recovery Plan

90WN0056A Moscow SOVETSKAYA ROSSIYA
in Russian 29 Apr 90 First Edition p 1

[Unattributed report: "At the RSFSR Council of Ministers: Program Approved"]

[Text] At a regular session the Presidium of RSFSR Council of Ministers reviewed the draft of the RSFSR State Plan for Eliminating the Consequences of the Accident at the Chernobyl AES in 1990-1995. That draft takes into consideration the comments and recommendations of USSR Gosplan's State Expert Commission and the USSR people's deputies, which were expressed by them during the discussion at a joint session of the Committee for Questions of the Ecology and the Efficient Use of Natural Resources and the Committee for the Protection of the Nation's Health and at the third session of USSR Supreme Soviet. The program draft was also reviewed and, for the most part, approved by the Presidium of USSR Council of Ministers.

The session approved the program of first-priority measures for 1990-1992. It stipulates the resettlement of citizens away from the contaminated rayons. For these purposes it is planned to activate approximately 2 billion square meters of housing, and 190 million rubles are being channeled into developing the capacities of construction organizations and the production of building materials. It also approved measures intended for a more prolonged period of time—until the year 1995. Provision is made for the development and improvement of medical services, the carrying out of a series of measures to improve the health of the population, especially the children. Further development of the agroindustrial complex is planned, as well as a buildup of the production potential and the restoration of the losses linked with the elimination of farms in the resettlement zones, the development and reinforcement of the material-technical base of the social sphere, and the carrying out of operations to improve the amenities in the populated places. Emphasis was made of the need to provide scientific support for the operations linked with implementing the planned measures.

In order to fulfill the RSFSR State Plan for Eliminating the Consequences of the Accident at the Chernobyl AES in 1990-1995 stipulates the channeling of more than 10 billion rubles.

Belorussian Authorities Dispute Official Post-Chernobyl Data

*90WN0031A Moscow PRAVDA in Russian 24 Apr 90
Second Edition pp 1, 3*

[Article by S. Pastukhov: "Nightingale Hell"]

[Text] We turned off the asphalt road into the forest and shut off the automobile's engine at the nearest clearing and were suddenly immersed in the silence of tree trunks, branches and the April greenery reaching out to the glorious light, which (silence) in the first instant seems to be absolute but in reality is full of very different kinds of rustling, creaking, scraping, somebody's sighs, the beating of one own's heart, pulsating blood. And suddenly...

Oh, my God, what is that?

A tiny bird, as small as a grey sparrow, suddenly took off above my head with a flapping of wings and immediately made a quick, short, chirping noise like a shot, momentarily blocking out all other noises in the Spring world around us. Following that she produced a whole treasure of the same kind of clear warbling of its tiny larynx.

"The nightingales are singing," commented Anatoliy Vladimirovich Martynenko, director of the "Strelichevo" state farm. I asked whether this was the same place we had been twelve years ago. It was so similar.

"Yes," he agreed, "it is similar. But no, it's not the same. Nobody goes to that place any more. The radiation there is one thousand microroentgens per hour."

And here? We turned on the dosimeter and after thirty second it showed 24 microroentgens, fifty times less. And this, as Martynenko and other comrades told me, is "tolerable." According to the official view of the USSR Minzdrav [Ministry of Health], which has been elaborated on the basis of recommendations by scientific authorities, it would be possible to easily live 70 years in this place where we sat down for a hour or two to breathe the forest air. Why seventy? Because, as Martynenko and his comrades explained to me, if you adhered to certain conditions, you wouldn't accumulate or take in more than 35 bers (biological equivalent of the roentgen). Why thirty-five? That's the maximum level of radiation accumulation allowable which was determined by the experts for those who live in the zone showered by the ashes from Chernobyl.

The last time we met Anatoliy Vladimirovich was party committee secretary of the "Oktyabr" collective farm. I arrived at the farm then to get to know its famous machine operators, Heroes of Socialist Labor, corn growers Vladimir Pavlovich Kot, now diseased, and his student, Lyutian Vasilyevich Sakovskiy. Lyutian volunteered to thresh a thousand tons of grain with his combine in one season, the normal workload of five people! And by that time he had done it and brought along dozens of other "thousand-tonners" of the oblast. Wonderful people.

The village of Babich was wonderful and free as well, the central "Oktyabr" farmstead. The streets are clean, the houses in good repair, the inhabitants are happy and love to joke and to sing and dance. The village was green surrounded by orchards. Now a barrier crosses the road which leads to it. From the booth next to the barrier a rather somber individual comes out and Khoyniki rayispolkom chairman Aleksandr Ivanovich Obukhov steps out of our car and begins to explain something to him; the former frowns more and more but suddenly waves his arm and raises the barrier.

Everything was as before; agricultural machines at the edge of the village in the equipment yard, well-constructed brick houses intermixed with wooden huts, an entire village of elegant cottages which the residents of Babchin named after former Belorussian Communist Party Central Committee First Secretary Mazurov who came to take a look at "Kot's corn" and who founded the village that carries his name. And the streets as before were spotless although it's been four years since they were cleaned. As a matter of fact, since they stopped cleaning them, there is nobody around to get them dirty, no people, no livestock.

There's not a soul now in Babchin. Not a single chicken, pig, sparrow, cow or crow. In 1943 I saw villages and villages in the Gomel region burned to the ground. A terrible sight. Today's Babchin is worse. In today's Babchin you want to pull back your hand from whatever you touch as if from red-hot steel. The air itself, it seems, is white-hot; it breathes radioactive poison. The breeze carries the aroma of generously blooming cherries...a toxic aroma. The breeze carries the singing of spring birds to us...poisoned warbling.

"Four years ago I was working as chief of the second department of the Gomel oblispolkom," Grigoriy Ivanovich Akhramenko told me during the drive here. He currently is the deputy chief of the directorate of radiology and radiation protection of the same committee. "On 26 April rumors reached us over the people's tom-tom that something had exploded at the nuclear power station at Chernobyl in the Ukraine. I called Kiev and other places but nobody could provide a decent answer. People called me from Minsk and I didn't know anything either. They told me to wait, that we'd go together. The referent arrived from Minsk and at one o'clock in the morning on the 27th we were both in Khoyniki at the office of the rayispolkom chairman Obukhov. As soon as it began to get light, the three of us continued the trip. We came to one village and there wasn't a soul, people had panicked and fled. We came to another and people were hanging around the office. And then we got to Chernobyl itself."

On 29 April approximately 150 officials arrived in Khoyniki from Gomel under the leadership of Oblispolkom Chairman Aleksandr Adamovich Grakhovskiy, currently Gomel party obkom first secretary. The oblispolkom essentially relocated to the epicenter of the nuclear disaster on Belorussian territory. And nobody had any knowledge or experience of dealing with a

radiation catastrophe of that magnitude and everyone acted, as Akhramenko said, "on intuition."

First of all children and pregnant women were removed from the twelve villages closest to the reactor which had exploded. Then they began to evacuate people entirely from another 28. By 5 May, 51 populated areas had been completely abandoned; 4,942 families were relocated to a zone 50 kilometers from Chernobyl. In all by this date 11,389 families were evacuated from the three closest rayons in the Gomel oblast, Braginskiy, Khoynikskiy and Narovlyanskiy. At the same time livestock was removed as well.

"In those days," continued Grigoriy Ivanovich, "while carrying out the evacuation of the populated areas, we really didn't get any sleep. Many of us were sick. Some had bloody diarrhea from taking antiradioactive iodine pills. Some had bloody noses and were in a weakened state from overexertion. The oblsposkom chairman almost died. But listen to this. Not a single accident occurred on the overloaded highways at that time. From 3 to 10 June we evacuated another 28 villages, or 2,400 families. From 27 August to 30 September another 29. All together in three evacuation stages 108 populated areas..."

Babchin is one of those that are already uninhabited today. Not far away is the small village of Mokish where people still live and that's where we went. The asphalt highway is level as a child's gaze. Along the road I unintentionally notice the fields. On the left the fields are abandoned and overgrown by weeds. On the right, literally within 20 meters they are still farmed and are covered with bright, happy green growth.

Rayisposkom Chairman A. Obukhov (we will acquaint you briefly with him; he's 43 years old, arrived in the Khoynikskiy rayon 23 years ago as an animal husbandry specialist, then worked as collective farm director, state farm director, was chosen "rayon elder," is married and has a young child but, in spite of everything, has not left, because, and I'll quote him here, "I can't leave now; I would be ashamed"). Anyway, Aleksandr Ivanovich explained that the village of Mokish used to be a part of the "Oktyabr" collective farm but then the only surviving village was transferred to the "Strelischevo" state farm under the wing of A. Martynenko whom we already know. However, Mokish, along with the entire state farm, is also doomed, it also much be evacuated because the fields in the area allotted to the farm are "fertilized" with cesium-137, strontium-90 and even plutonium...

In Mokish I almost didn't see anybody even though it was a holiday, the Annunciation. The only people around were two old men on a bench in front of a store taking care of a baby in a carriage (that means, he was conceived, born and has lived "after the explosion.") There were also several old women in the store itself. They waited politely for five minutes and then came up to the rayisposkom chairman with questions: what should they do, how are they supposed to live now, should they plant potatoes? He answered, "plant them

and if they have too much radioactivity and you can't eat them, you can make alcohol from them." It would still be useful and the old women nodded their heads. Suddenly one of them asked: "The chairman is walking around our store but hasn't bought anything. Are you afraid?" The chairman took off his cap, a cap with the price tag still on. "Then what's this?" And the old woman smiled.

That was the first smile I had encountered among the locals.

The head doctor of the Khoynikskiy rayon hospital Aleksey Pavlovich Tarasevich and his deputy Viktor Ivanovich Kobylko who have worked here for many years told us that many of their patients from the zone of strict radioactivity monitoring have powerful feelings of fear, depression and anxiety. There's quite a bit of these "commodities" these days not only among the people residing in this zone. How about in the zone itself?

Malgozhata Iyosifovna Yavosh, chief of the children's wing of the rayon hospital, (she has worked in Khoyniki for six years; her husband is also a doctor and their son goes to school) reports that the birthrate in the rayon has decreased from 20 (in the past) to 14 (at the present) per thousand inhabitants. Last year 16 of 545 newborns in the rayon had birth defects and this was slightly over three times the number the year before last. In addition, among the newborns completely unexpected defects have appeared which previously had not been seen in the rayon and which were caused by anomalies in intrauterine development and often were life-threatening. Last year three cases of malignant tumors among children were identified, cancer of the liver, kidney and sarcoma of the cecum, which also were unknown here previously. Recently, before my arrival, 18 children were taken to Minsk for treatment from the rayon who were diagnosed with thyroid gland disorders. That's what it's like right here in the zone.

The same situation on the whole exists among the population of the Gomelskaya oblast residing in the contaminated area. And increase in diseases of the blood, thyroid gland, respiratory and digestive systems, has been noted and the frequency of disorders among pregnant women has increased and illness among children has increased. And although they are taking measures here to strengthen the health care system (for example, since 1986 278 additional medical facilities have been constructed at a cost of 60.7 million rubles), the level of its development and the quality of medical care are still low. For early diagnosis and the successful treatment of the "Chernobyl consequences" there is a shortage of ultrasound diagnostic equipment, X-ray equipment with electronic-technical transformers, endoscopic equipment and biochemical analyzers. There is a shortage of approximately one thousand doctors and two and a half thousand medical workers.

"Doctors are not eager to come to our oblast," Anton Alekseyevich Romanovskiy, chief of the oblast health department, noted this sad but true fact. "Last year of 329

medical school graduates who were assigned to us, 86 did not show up. Many experienced doctors are leaving the oblast; 45 went abroad. It used to be a good place to work and live. It's bad now, people are running away..."

"There's no place for us to go," says Vladimir Kashperko, tractor driver from the "Strelichevo" state farm and USSR people's deputy, "although a very crucial need for evacuation does exist..."

The people's deputy (he is 33 years old, married with two daughters) acquainted me with a summary of the work conducted by the Belorussian Academy of Sciences Institute of Radiobiology on determining the radioecological environment on the farm and the evaluation of the internal and external exposure of its workers. The overall conclusion: significant levels of gamma, beta and alpha radiation have been discovered on the territory of the state farm as well as significant contamination of agricultural production and the air which has led to the incorporation of radionuclides in people's bodies. The content of radionuclides in the soil, the inhabitants' urine and the air requires further study of all radioecological parameters for an accurate evaluation of the external and internal exposure of local inhabitants. According to preliminary data, its "sum" for three years and nine months in the village of Guborevichi was (the count is in bers) 6.2, in Ivanovka and Krasnoye Ozero 4.65 and in Strelichevo 5.27. In other words people here will accumulate 35 bers not in 70 years but significantly earlier.

In December of last year V. Kashperko made a deputy's inquiry regarding the situation. Inhabitants of the villages of the "Strelichevo" state farm appealed to a variety of government entities with the request to relocate them to somewhere in a "healthy zone."

Recently the deputy received an answer from the USSR Council of Ministers which stated that according to a conclusion reached by the USSR Minzdrav and the USSR Goskomgidromet [State Committee on Hydrometeorology] the method of counting bers in the human organism proposed by the Belorussian SSR Academy of Sciences Institute of Radiobiology "cannot be recommended for utilization in resolving the question of relocating the population and establishing benefits." In other words, don't believe the institute and its director, Belorussian SSR Academy of Sciences Academician E. Konoplya. The deputy showed me the conclusion of A. Kondrusev, deputy minister of health; Yu. Tsaturov, deputy chairman of the USSR Goskomgidromet and N. Krasnoshchekov, deputy chairman of the USSR Council of Ministers State Commission on Food and Procurements, in which they state that the undisputed relocation of the inhabitants of the state farm's villages is not mandatory since the expected doses in its populated areas does not exceed 35 bers.

The deputy also acquainted me with the official conclusion of the "Moscow authorities," L. Buldakov, USSR

Academy of Medical Sciences academician; R. Barkhudarov, candidate of technical sciences, who accused E. Konoplya, the academician from Minsk, of "ignorance of the currently accepted basic principles of standardizing the exposure of the population residing in contaminated areas." That is to say, he gave his colleague a "D."

"Far away from us," said V. Kashperko in this regard, "it is easy for some Muscovites to draw optimistic conclusions and comfort us from a distance. They should come themselves and personally calm the people...Now that I mention it, one did come for one and a half days and created even more panic. He brought with him a full canister and the people thought it was beer; it turned out it was water from Moscow. He was afraid to become infected."

Why complain about the "Moscow scientists" when "our own" Belorussian scientists are no better. During my trip to Gomel an interrepublican scientific-practical conference was underway on the economic and morale problems caused by Chernobyl. At the conference it was mentioned that just in the republic approximately 50 academic and industry-affiliated scientific research institutes were involved in the scientific aspects of eliminating the consequences of the accident. However, except for an affiliate of the NII (scientific research institute) of agricultural radiology no concrete directions or recommendations had been received yet. Two years ago on a considerable part of the evacuated zone the special Polesskiy state ecological preserve was created, where the Belorussian SSR Academy of Sciences was supposed to organize scientific research projects to study the climatic and ecological problems associated with the presence of radioactive contamination. But it has not even begun work on this.

The inhabitants of the oblast still do not have an accessible booklet regarding the rules of behavior in contaminated areas...

And people don't know whom and what to believe. Doctors in the same Khoynikskiy rayon hospital said that inhabitants of the rayon have begun to flatly refuse to submit to medical examinations. It's useless, they say, why should I bother. That to a degree is right. According to instructions from "above" the doctors have filled out up to 160 thousand cards on these examinations and have sent them off to scientists and you'd think that they would at least send some kind of answer.

Moscow and Minsk scientific authorities argue among themselves: which concept is better; the 35-ber concept or the "no-threshold" concept, that is, one which does not provide for any maximum limit of the accumulation of radiation in the human organism but which requires decisive measures to be taken, evacuation, if it is not possible to obtain clean production from the land contaminated by radionuclides. The inhabitants of the same village of Ivanovka are in a state of complete desperation. They can live in their village but the pigs that they raise have to be slaughtered and buried. They can't be

eaten. And the children cannot go into the forest or to the meadow or swim in the river. In general walking on the street is not allowed. Twelve hours under the roof of the school and twelve hours under the roof of their parents' house.

The argument between the Moscow and Minsk scientists, as was explained to me in the oblispolkom, is not as much a theoretical one as an economic and mercantile one. According to the "Moscow" concept less money is needed to combat the consequences of the accident than that which the Belorussians are seeking from the government of the country. As it is, resources are in short supply and therefore they reply to the deputy-tractor driver V. Kashperko that it is possible to live in his village and in the neighboring villages. If, on the other hand, you want to relocate, be our guest, but do it at the expense of internal resources. But there are not enough of these resources "internally" either.

Poor people. My poor countrymen.

So I am participating in a planning session in the office of the "Strelischevo" state farm director. Outside it's a spring day, but it's not about planting or some other spring work that the people who have gathered here are talking about. One has a daughter who is studying in Minsk who was planning to get married. But the groom's parents found out that she was from the Khoynikskiy rayon and forbade him to get married: what if the grandchildren are deformed? Another's eight-month old baby started to cry; it's alright if the baby is teething, but what if...

Outside the sky is black with crows. Some are building nests in old trees and some (I never saw such a sight before) rush in groups and destroy the nests, tossing them among the branches. It turns out that not all the crows are local. Many came here from abandoned villages like Babchin. That's how it happens, if people leave, their birds go too.

God, our small feathered brethren cry out like madmen when they are brought to ruin!

Belorussian Chernobyl Measures Criticized

90UN1610A Moscow KOMSOMOLSKAYA
PRAVDA in Russian 24 Apr 90 p 2

[Report by KOMSOMOLSKAYA PRAVDA correspondent O. Yegorova: "Living With Radiation"]

[Text] Gomel Oblast—*Seventy percent of the territory affected by Chernobyl is in Belorussia. Its land and people are waiting for help from the world.*

At first glance it would seem that Svetlana Savenok and her family have been lucky. They were quickly given a two-room apartment in the settlement of Vorotyn at the "Rodina" sovkhov [state farm], which was built after the accident. The house is a farmhouse type—they have their own little garden and cultivated beds. The children

have plenty of room. But how many times I heard her say "No, no one here will talk to you about happiness...."

Before the tragedy they used to live in the same neighborhood as their parents; they were only four kilometers away from each other. Now everyone has been settled in different places—they have lost their relatives and people they had known for years, and hundreds of villages have been dispersed across the wide world....

For the first two years or so that they lived in the new place it was exactly like a railroad station building: No one tended the garden or raised the chickens. The rumors came and went: The neighboring village has been re-evacuated. People have returned home. Someone will give the word suddenly, tomorrow, and they will return to their own Kozhushka or Dovlyady, is this not so...?

Some are still waiting even now. But it seems that the Savenoks have reconciled themselves to it: Last year they turned in three suckling pigs to the state and planted two apple trees in the garden, along with nut trees and shrubs. And the main thing is that a daughter has been born into the family; this is now home for her. And the settlement has turned out not to be so bad: Social, cultural, and other services have been organized and her husband, a tractor driver, earns a good wage. They live in a more or less friendly fashion with the neighbors; in a "prefabricated" village this is always a problem. So why are those who have settled there not happy? It is nothing out of the ordinary: Local people have been waiting for years for a new apartment or house, and then just get pushed aside. The same amount of buckwheat in the store is not enough for everyone. The victims get it, the local people do not. Try explaining all that to people so that they understand properly.

Mikhail Bazulko, an expert on radiation protection from the Gomel Oblispolkom [oblast executive committee] who traveled down with me, told me about his own parents, who are now still living in the so-called zone of optional resettlement. What does this mean? If you want to leave, you leave. If you want to stay, you stay. But just remember: You cannot catch the fish in the river. It is also in particular forbidden to collect the mushrooms and berries in the forest.

"And how did they live before the accident?" Mikhail asks me. "I never once went south with my family for a vacation. They have everything there in the new settlements. Only they have a whole sack of dried white mushrooms, not to mention berries. There is fishing, hay, grass.... And all of this has become impossible—we have sinned against nature and against ourselves. Now everything is buried in the ground—everything, lock, stock, and barrel.

Truth to tell, I never thought I would hear such things: The countryside is like a graveyard. I know of only one other place like it in the world—Khatyn. It turns out that there is another. The no less dreadful graveyard of the villages. There are several of them around the rayon

center at Bragin. Only you would not believe that people are living so close to deadly danger....

But they are. They are living there and they are raising children. At the rayon center at Khoyniki a new birthing facility was recently commissioned. Four years after the catastrophe people are living and receiving their "share of radiation" every hour. They are living there because they do not know where to go. Neither do they know how harmful it is to live there. They do not know what to do.

"People are living even where the barbed wire has been put up, dozens of old people," Vitaliy Nikolayevich Sych, deputy chairman of the Gomel Oblispolkom, [oblast soviet executive committee] told me. "And what is to be done with them? You cannot take the old fellows out by force. And it is a complex matter to deal with the people from the villages—people have started to return home, when they are ordered off to foreign parts the social tensions grow."

"No one talks about happiness...." I remember Svetlana Savenok. And in the village of Savichi every one repeats those words. They have gone in large numbers around the republic, and no one asked them there.

And the colors are not the same. And they sing different songs. But it seems that they have not really traveled far. They waved goodbye to the radiation and returned home to the zone of strict control.

"It is wonderful," says front line worker Ivan Romanovich Bereznyatskiy. "The telephone works, we listen to the radio and watch television. And no one registers you in the village. There are a hundred families in the village, including some who are registered nowhere. It is as if Savichi does not exist."

But in fact Savichi is considered to be a depopulated village. At the same time the mobile store goes there with essential products, and in other villages they have even opened stores, but they do not give them additional payments. They say that it is not authorized. And so they are villages, but at the same time they are not villages. So can they live there, or not?

The answer is unambiguous: They cannot, the radiation is high.

"But who will tend the memorial to the fallen soldiers?" Ivan Romanovich naively continues his story. "It is almost the 45th anniversary of the victory. You cannot just abandon the land, the house, the graves. If any of those who have gone away die, they will still be brought back here for burial, in their own place."

On the street the boarded up homes alternate with lovingly well-kept yards: It is spring, time for sowing. People are sowing potatoes. And everything else that you find in home gardens. And they have no guarantee that they will grow clean produce. Work it out for yourself: internal irradiation plus external radiation in the produce. But they stopped thinking about that long ago. As god gives, they say, so shall we live. And it is not true at

all that the people in the villages are old people. Three months ago a child was born even in Savichi. What can it expect?

No one knows the answers to many, many questions. No properly organized information service has yet been set up in the oblast, and there is insufficient housing in the clean areas. And so people are wandering about the republic in search of some kind of refuge.

In this connection I recall a conversation with V.V. Grigoryev, first secretary of the Vitebsk Obkom [oblast party committee], who four years ago offered his area for the resettlers. But of course it was not done without rhyme or reason, but with a comprehensive program drawn up before hand in the first year, not four years later, as is the case now. The obkom secretary proposed that settlements be built in the Vitebsk area, not close to the zone—how many resources and how much construction material was squandered on those villages, in which, it now turns out, it is impossible to live! They would not listen to those voices at that time.

Who else, apart from us, would permit such criminal waste?

But even today they continue to build "not there." In the Gomel area alone there are 19 settlements, and no one knows what will happen with them. When the construction started the Ministry of Health gave its consent: Build, live there, it's safe. And they built. And then? That same Ministry of Health forbids anyone to live there: The neighborhood is contaminated with radionuclides above the permissible level. Is there no blame here? Meanwhile, 3,000 people have been forcibly resettled from the zone to the Gomel area because there was nowhere else for them to go. And in the Mogilev area 34,000 people, including children, are living in the control zone. The fate of each person and each child is tragedy on a human scale. Are we all today hearing the bells of Chernobyl tolling...?

I think that the problem of those resettled in Belorussia is much more delicate and dramatic. And for some reason little is now being said about this. The Belorussian people have since time immemorial been used to living in the one place. Their native hearth is here, the most precious of what is precious to them. Before the catastrophe fewer people left the republic than immigrated into it. Now everything has change. Migration processes are poorly controlled. Where is this leading? Now is the time to ask the sociologists, the demographic experts, the economists, the politicians. Surely history has known no tragedy that has so affected people who for various reasons have lost their permanent way of life. The consequences cannot be predicted when a people is being lost....

Anatoliy Alekseyevich Golovach, a candidate of medical sciences and a psychotherapist with great practical experience, is seriously concerned about this new medical and social problem. People living in the zone (and the zone covers virtually the entire republic if we take into

account all the resettlers and those who have been through the crucible of the cleanup following the catastrophe) should be carefully studied. It is not only "radiation phobia" and nostalgia that should be of interest to the scientists here but also the effect of low doses of radiation on the nervous system and a person's psyche.

But it is common knowledge that we have no psychotherapists....

Up to now there has been no special diagnostic center in Gomel Oblast for catastrophe victims. And what about the radiation centers? There is a shortage of physicians—Gomel Oblast has one-third of the number it needs. Just as in the best years of stagnation, the departmental allocation of medical care has been adopted. What can be more immoral than a situation in which the local chemicals plant (which is daily polluting the atmosphere with impunity) is pumping out money to acquire imported medical equipment to provide free health care services for its workers? The "outsiders" pay regular money for these same services.

In the local hospitals there are shortages of basic medicines, vitamins and the simplest drugs to improve immunity. Against this backdrop the size of the catastrophe just multiplies, thanks to our usual slipshod way and our indifference and astonishing complacency, as if the situation will change all by itself.

No, there will be no miracle. We need enormous resources, and I think that the R18 billion on which the hopes of the republic program for the cleanup after Chernobyl have been based, will amount only to a miserable pittance compared to the resources that are needed. And the worth of the ruble is declining with each passing day.

So what if we are beggared—there is nothing to be ashamed of in that. Today virtually the whole world is offering us help. Some send disposable syringes, others the latest medical equipment and drugs, or, like Fidel Castro, they accept children who are victims into their own clinics for treatment. Not long ago an international nongovernmental organization, "Physicians for Peace," offered its services, assuring us that it could start its actions literally in only a few days. And then what?

It turns out that in order for us to resolve this "problem" we need permission from the government! But do the people still not need help, even if a decision has not been made? For it is a question of hundreds of thousands of people, millions if we include the Ukraine and Russia. So is it finally time to come to our senses and open up all possible borders for help, from no matter where it may come? It is time to make this help, just like the misfortune that has befallen us, national and worldwide. And there is no need to fear saying out loud the number of the account to which money can be transferred for the victims fund: 700073 Minsk, Operations Office of the Belorussian Republic Zhilsotsbank of the USSR, Interbranch Transactions 40019.

This was exactly how these problems were presented by those attending the interrepublic scientific-practical conference "Chernobyl: The Socioeconomic and Moral Aspects," which took place in Gomel. One of its sponsors (in addition to the informal organizations) was the Gomel Oblispolkom, whose leaders have been actively involved in the debate on the very acute problems, which they themselves named: The process of compartmentalization is complex and no concept has yet been approved for safe residence. One can only guess what will happen. Which is immoral—the lifetime 35 rem that has been suggested by the scientists in Moscow or the concept of clean produce for which the scientists in Belorussia have been fighting for so long?

"We do not now have Union support on many burning issues," said Nikolay Grigoryevich Voytenkov, chairman of the Gomel Oblispolkom, "and the problem of self-sufficiency for the oblast in terms of foodstuffs has still not been fully resolved. Nor has the question of foodstuffs going outside the oblast. There are no travel passes for health maintenance for children; the All-Union Central Council of Trade Unions issued only one-third of what was requested. There is no comprehensive support anywhere, from medical assistance to resettlement. There are not even any leaflets on correct behavior in contaminated areas."

"At the same time," the oblispolkom chairman continued, "we are not sitting on our hands. As long ago as 1988 we took up and reviewed the interim maximum permissible level of radionuclides for meat and milk, and lowered them by factors of three to five...."

Humane. And where did these interim maximum permissible levels of contamination for water, air, or foodstuffs come from? Were they taken out of thin air by the Ministry of Health? For nowhere on earth do "permissible" doses of radiation exist. Even the smallest doses above the background level are already a danger, a misfortune.

It would seem that everything is very simple: No complicated mathematical calculations are needed here. But it turns out that what is complicated is changing anything. It is even more complicated to live in accordance with an elementary moral standard.

In four years no one has learned how to live with radiation.

Swiss Technology To Be Used at Chernobyl

PM0905075190 Moscow IZVESTIYA in Russian
5 May 90 Morning Edition p 5

[Yu. Kosinskiy dispatch under the rubric "Switzerland": "Technology for Chernobyl"]

[Text] Geneva—The Soviet Union will become the first country in the world to possess the latest technology for decontaminating radioactive metal. Starting January 1991 a plant under construction at the Chernobyl AES

[nuclear electric power station] and fitted out with the latest equipment derived from technology developed by the Swiss company "Retsitek" will be able to decontaminate up to five tonnes a day of the diverse metal equipment which has accumulated in the station's area.

The siting at the AES of an enterprise equipped in line with Swiss technology became possible thanks to an agreement signed March this year between the Soviet association "Atomenergoeksport" and the Swiss company "Retsitek," which specializes in the transfer of advanced technology.

The features of the Swiss technology are its highly effective decontamination of radioactive metals at a relatively low process cost. The process' basic principle is the decontamination of metals which are immersed for a set time in a concentrated acid solution. It is as if the acid, by eating away the metal's surface, washes out the radioactive particles, which form a sediment. The waste from "washing" 100 tonnes of metal fits into a container measuring 30 cm by 30 cm.

Decontaminated radioactive metal becomes safe to man and the environment and can be utilized as secondary raw material. Major U.S. transnational corporations controlling the nuclear power industry are also showing great interest in the Swiss technological innovation acquired by the Soviet Union.

AES experts think that there is a great future for enterprises concerned in decontaminating the production equipment of AES's. There is an increasing number of outdated AES's requiring overhaul or modification in the world. By the year 2000 there will be around 40 such stations in various countries. The main work at them is linked to the need for preliminary equipment decontamination. As yet this process is not sufficiently perfected and is extremely expensive—around \$20 for every decontaminated kilogram of metal. Countries possessing the advanced and economical technology for decontaminating equipment and radioactive metals can earn or save hundreds of millions of dollars and guarantee the safe protection of man and the environment from the rays of "the invisible death."

IAEA Project To Examine Chernobyl Aftermath

*LD1005211190 Moscow TASS in English 2053 GMT
10 May 90*

[By TASS correspondent Yuriy Kozlov]

[Text] Vienna, May 10 (TASS)—A project for international expert examination of the radiological consequences of the Chernobyl accident was submitted at a news conference here today.

The news conference, organised by the International Atomic Energy Agency (IAEA), was attended by IAEA Director-General Hans Blix and by the heads of a number of departments and subdivisions of the agency.

The purpose of the project, Blix said, is to carry out an international expert examination of the USSR-elaborated concept of safe living of the population on territories affected by radioactive contamination as a result of the breakdown at the Chernobyl nuclear power station and to estimate the effectiveness of measures being taken in those areas to protect the population's health.

The project is to be implemented in several phases and is to be completed by the end of the current year.

The work will be directed by the International Consultative Committee under the chairmanship of Japanese scientist Itsujo Shigematsu, director of the Radiation Effects Research Foundation in Hiroshima.

On the committee are experts from Austria, Belorussia, Britain, Canada, the Soviet Union, the United States, the Ukraine, Finland, France, Japan, as well as the commission of the European communities, the United Nations Food and Agriculture Organisation, the UN Scientific Committee on the Effects of Atomic Radiation, the World Health Organisation, and the IAEA Secretariat.

About 100 experts will participate in the implementation of the project, which is to be started in the coming few days. Work is expected to be done in five main directions: to recreate the chronology of all events occurring after the accident, the confirm the scope of its consequences for the environment, selectively to verify the data provided by Soviet specialists and their approach to determining the ultimate permissible doses and values and the effect of radiation on the state of people's health and to evaluate protective counter-measures taken by the Soviet side.

Upon implementing the project, the International Consultative Committee will prepare an authoritative report that will be published and circulated through IAEA channels.

This work will serve as a basis for subsequent surveys, including those within the framework of an international research centre being established in the area of the Chernobyl nuclear power station on the Soviet Government's suggestion.

Provision is also made for special conferences in Kiev and Minsk where the results of research will be submitted for open and wide-ranging discussion.

IAEA Experts To Study Chernobyl Effects

*PM1705104590 Moscow PRAVDA in Russian
15 May 90 First Edition p 7*

[Own correspondent I. Melnikov report under the rubric "Aftermath of the Accident": "What the Independent Expert Analysis Showed: Press Conference by IAEA Director General H. Blix"]

[Text] Vienna—I have attended many press conferences in Vienna. But I cannot recall a conference like the one at the UN complex there last Thursday [10 May]. The hushed journalists listened to the speakers' every word. IAEA [International Atomic Energy Authority] Director

General Hans Blix and his immediate assistants were describing the international expert analysis of the Chernobyl accident's radiological after-effects. A common misfortune unites people, which was why Polish and Finnish journalists, whose countries are not very far from Chernobyl, and their colleagues from Japan, India, and the United States, questioned the experts with a sense of deepest concern but without any trace of bitterness.

The Soviet Government asked the IAEA in October 1989 to conduct an expert analysis of the "program devised in the USSR for the population's safe habitation of territories affected by radioactive contamination as a result of the accident at Chernobyl AES [nuclear electric power station]."

The IAEA, in conjunction with the EC Commission, the UN FAO [Food and Agriculture Organization], the UN Scientific Committee on the Effects of Atomic Radiation, and the WHO, organized a major project with a group of independent international experts working within it. They set up a preparatory international expert mission. At the end of March the experts, who included Austrian, Japanese, U.S., and British specialists, accompanied by two USSR Supreme Soviet deputies, visited the Ukrainian population centers of Poleskoye and Ovruch; the Belorussian centers of Bragin, Veprin, and Korma; and the Russian towns of Novozybkov and Zlynka. They studied information received from scientific organizations, hospitals, clinics, and agricultural centers.

The materials collected were sent to the International Consultative Committee chaired by Itsuzo Shigematsu, director of the foundation studying radiation effects in Hiroshima. The committee approved a working plan two weeks ago, and about 100 international experts will take part in its implementation.

The present meeting with journalists at the UN office in Vienna was essentially the first stage in creating an atmosphere of complete openness, and thus in counteracting the rumors and fabrications which appeared during the very difficult work of tackling the Chernobyl problem. IAEA Director General Hans Blix; Morris Rosen, director of the agency's Nuclear Safety Department; and David Kidd, director of the Public Information Department, gave exhaustive answers to absolutely all the questions asked. I shall quote a few extracts from the candid dialogue between the scientists and the journalists.

"Why," one correspondent asked, "do Soviet people still know very little about the situation in the affected localities and how do you intend to remedy this 'blank spot'?"

"The scant amounts of information seemed in keeping with the idea of 'secrecy' surrounding the AES topic, which was widespread in the USSR until recently," H. Blix replied. "Hence the present lack of confidence among the population. Now the IAEA is going to familiarize itself with the information provided by the Soviet side and

assess it so as to reduce the unease and defuse the complex situation which has developed in the regions affected by the Chernobyl accident. The IAEA did not make the decision to carry out this study itself, it is satisfying a Soviet request. The Soviet Government asked the agency to produce an independent assessment."

Another question: Who will pay for the expert study?

"The agency's main cost," the director general replied, "is associated with the secondment of its staffers. And even though the main cost of the project will be borne by the Soviet side, I must note that the work of foreign specialists in the USSR will be borne by their respective governments. Part of the equipment will be provided by the Soviet Union. A number of countries will be sending instruments free of charge: The French are sending meters to measure radioactivity of the whole body and a large quantity of individual dosimeters... Their example has been copied by Japan and other countries."

"What can you tell us about the quantity (whether it will be sufficient) and quality of the foreign experts?"

"We are recruiting the most knowledgeable and most highly qualified experts of world renown. They will travel around the Soviet Union. They will look into the situation regarding the diagnosis and treatment of the sick, while others will measure the level of contamination in a given locality and so on. Each will produce his own findings. As they are going to work selectively, the 100 specialists will be enough at first. We cannot check every corner of the affected region. But the population in those areas which we do monitor can be sure of our competence."

The following question was asked: Why does the population in the affected regions distrust the authorities? One reason, M. Rosen replied, is the absence of a uniform opinion among Soviet scientists and specialists regarding the criteria determining whether people may be allowed to live in the contaminated zones. Our aim is to help overcome the present 'discord'."

H. Blix made a brief comment on this matter. By all accounts, the local authorities said what they considered necessary. That caused people's distrust. Now the situation is changing—and this is very encouraging.

Those are just a few points I wanted to mention after the press conference which aroused such sincere interest in Vienna.

State Procurator Acts To Strengthen Hazardous Waste Handling Oversight

*LD2105223490 Moscow TASS in English 2216 GMT
21 May 90*

[Text] Moscow, May 22 (TASS)—The Collegium of the USSR Procurator's Office admitted that laws regulating procedures for the disposal, decontamination and burial of industrial and other waste hazardous for people's health are not enforced strictly enough.

It was noted that laws on environmental protection were often grossly violated by federal ministries and departments, republican governments, local councils of people's deputies and their executive committees, enterprises and organizations which fail to take needed measures to upgrade the level of industrial and consumer waste utilization and recycling, to produce goods useful for society, to prepare them for the modern use, to decontaminate and bury toxic waste.

The greatest hazard to people's health and the environment, the Collegium stressed, is presented by toxic industrial waste formed mainly at enterprises of the chemical, petrochemical and electronic industries, ferrous and non-ferrous metallurgy and some other industries.

A problem needing to be solved urgently is the utilization and burial of domestic waste, of which 56 million tonnes are produced annually. All this waste is usually dumped without recycling, while the dumps do not correspond to elementary sanitary standards and become sources of infection, pollution and conflagration.

The Collegium approved additional measures to reinforce procurator's supervision in order to avert and forestall violations of law connected with the pollution of the environment by toxic, radioactive and other waste hazardous to human health.

Coverup Alleged in Shipment of Radioactive Slag From Podolsk Plant

90WN0054A Moscow SOVETSKAYA ROSSIYA
in Russian 4 May 90 Second Edition p 2

[Article by N. Bulavintsev and A. Melnikova: "Urgent Report From Our Correspondents: Hostages of Radiation"]

[Text] The brief report in one of the central newspapers to the effect that radioactive raw materials had been discovered at the Podolsk Nonferrous Metals Plant stunned the people of Cherepovets. Because, for almost a year, the plant had used in steel smelting aluminum slag that had been delivered from Podolsk.

However paradoxical this sounds, the famous metallurgical giant still does not have any incoming dosimetric monitoring, although it is absolutely clear that, maybe not everywhere, but certainly in production where thousands of people are employed it is simply necessary. The first person to sound the alarm was A. Myasnikov, engineer in the steel-smelting laboratory. He measured the radiation level of the slag itself that was located at the bulk-materials sector of the open-hearth shop. The level proved to be elevated. That was also confirmed by the results of expert tests that were urgently carried out by the services that were supposed to carry out the analysis considerably earlier, when 600 tons of those raw materials had been received. Incidentally, there already exists

a special order pertaining to this—Ministry of Metallurgy Order No. 739, "The Branch Radiation Safety Service." And, indeed, there is such a service at the combine, and it is headed by N. Rynnov.

It became obvious that a serious blunder had been committed, and it was costing people their health. Obviously, people should have rushed to correct it. However, the expert testimony proved to be not enough for this purpose.

The shop and plant administrators were faced by the task: where and how to ship the dangerous materials that had already spread contamination around themselves for almost a year. With the help of the CPSU obkom and the oblast ispolkom, they succeeded in shipping the slag back to Podolsk. However, the enterprise leadership decided not to inform the workers about the reasons for the urgent "evacuation" of several hundred tons of slag. The managers of the open-hearth shop practically used force to begin getting them to load up the railroad cars. Deputy shop chiefs V. Proshin and N. Solodovnikov undertook the job of trying persistently to convince the machine operators that they should load the slag. The machine operators, remembering the sharp smell of ammonia when the slag was being unloaded, and by now suspecting that something was amiss, flatly refused to load it. But the pressure proved to be stronger than common sense.

For seven days, people loaded the radioactive raw materials. The grader buckets did not always deliver the slag to the railroad car without some losses on the way. The slag sifted through the openings, and the dust literally built up like a column. The radiation overtook newer and newer zones. And that is how it continued for several days. The slag gradually left the plant. Rumors about its increased radioactivity nevertheless percolated out of the confines of the managers' offices. The workers, realizing that they had been made the hostages of radiation and officials' vanity, formed a delegation and rushed to see the director of the Cherepovets Metallurgical Combine, Yu. Lipukhin. Yuriy Viktorovich promised the workers that he would look into the situation and severely punish the guilty individuals, but he did not succeed in restraining their justifiable anger.

The people who had worked with the radioactive slag needed immediate medical examination. And not in the local departmental clinics, which, according to them, serve only the interests of the management. Instead, they needed examination in Moscow. This is how that visit is recalled by N. Yemelyanova, who is one of the people who had been forced to load the slag into the gondola cars: "We were analyzed numerous times and we were carefully examined. Institute physician S. Gagarin told us that the effect of even small dosages of radiation over a prolonged period of time is dangerous to the human organism. So it is not precluded that some of us are sick."

The specialists' doubts were soon confirmed. After the first examination, six women were suddenly called back to Moscow for a second examination. They were found

to have enlarged thyroids. In the shop, many people sympathize with those women, saying, "We pray to God that everything will turn out all right." Actually, it really will be up to God. In this situation there is no one else upon whom to put one's hopes, because the managers of the enterprise and of their very own shop had deceived them.

When we asked N. Solodovnikov, deputy chief of the open-hearth shop, whether the managers had known that the slag was radioactive when they had forced the machine operators, including women, to work with it, he answered without any embarrassment, "Yes, they knew it..."

To this day no one is hurrying to tell the people at the combine the whole truth. Apparently reticence has already become a tradition at the famous giant. When, late last year, the latest in a series of discharges of poisonous substances occurred here, it took S. Beglyak, a journalist at the Vologda KRASNYY SEVER, a long time to find the answers to his direct questions. Many of the enterprise administrators gave obviously evasive answers in the attempt to conceal the truth. That occurrence also is by no means the only one. In April an explosion occurred at the combine. One of the authors of this article had to resort to asking assistance from T. Kurnyak, secretary of the party's Cherepovets Gorkom, in order to confirm the accuracy of the information. That is the attitude that people here have to glasnost.

We would like to believe that the leadership of the famous giant that has become accustomed to having pride in its achievements will have enough bravery this time to tell the workers that not all the radioactive slag has been shipped back to Podolsk, and that approximately 60 tons of it continue to be stored at the combine. And enough bravery to finally take the appropriate steps to bring to accountability those persons who are guilty of perpetrating this emergency situation with the radioactive raw materials, who juggled the figures concerning the radioactive background, and who deceived the workers, pushing them to the brink of tragedy.

Kaliningrad Fields Unwittingly Contaminated With Radioactive Elements

90WN0054B Moscow *RABOCHAYA TRIBUNA*
in Russian 4 May 90 p 1

[Article by R. Minakova, Kaliningrad Oblast, under rubric "Emergency Situation": "Well, We've Fertilized It...: An Ostrich Sticks Its Head in the Sand, But Officials Stick Theirs in Departmental Papers"]

[Text] Mechanizers in Namanskiy, Ozerskiy, Pravdinskiy, and Chernyakhovskiy rayons, Kaliningrad Oblast, fertilized the fields on their farms with radium-226, thorium-232, and uranium-238.

To tell the truth, these people are completely not to blame because the land on several kolkhozes and sovkhoses has proven to be contaminated by radio

nuclides. If they had known that the phosphate fertilizer that they had obtained at the rayon agrochemical associations would "light up" in excess of the norm, they would have turned off their motor. But, unfortunately, they learned too late that, together with the fertilizer, they had been applying radium, thorium, and uranium to the soil. It was not until 1310 tons of phosphate fertilizer (out of the 1820 tons that had been shipped into the oblast) had been applied.

It was only pure chance that made it possible to learn of the dangerous properties of the fertilizer itself that had been lying around unused for a year at warehouses of the oblast-level Agropromkimiya. In Gvardeyskiy Rayon the local "Greens" undertook the job of checking the state of the territory around the industrial sites. At the fertilizer warehouse of the rayon Agropromkimiya Association, the instrument used for measuring the radioactivity level indicated that the natural background was exceeded by a factor of 10. There was no doubt about it: the radiation was coming from the sacks filled with the phosphate fertilizer. When the instrument was placed between sacks—these are in polyethylene packing and weigh a ton each—the dial indicated 250 microroentgens an hour...

The next day the oblast sanitation and epidemiology station and the oblast environmental protection committee sounded the alarm. They reported to the oblast administrators about what had happened. A team flew out to the rayons, to tell people not to use the phosphate fertilizer. But the mechanizers had worked diligently: by that time almost all the fertilizer was already on the fields.

How did all this happen? Because the fertilizers had proven to be "dirty"? Why were they sent to the fields without being checked? Well, the fact of the matter is that the phosphate fertilizer had been monitored at the oblast chemicalization station of Agropromkimiya Association. But the radiology specialists had not detected anything suspicious. It's an absolute outrage. But the people at the station do not think so. Head radiologist Ye. Ryzhova explained to me that, with the aid of the methodologies that they use, it is impossible to detect what the "Greens" detected. But the most important thing is that the instruction guides do not require them to carry out a thorough analysis of mineral fertilizers for radioactivity. And since the instruction guides do not require it, it was simply that no one carry out gamma-spectrum analysis of the fertilizers. Although it was only that kind of analysis that could have shown the true situation.

Well, whoever should have done it, in this instance the agrochemists should have been triply vigilant. After all, the fertilizers had come from Syria. And it is well known about Syrian phosphorites that they are among the "dirtiest" in the world: they contain a large quantity of heavy metals, including carcinogenic cadmium and radiation-hazardous uranium.

The Odessans, who had fought against having a chemical combine situated in their oblast for the purpose of producing phosphate fertilizers from this raw material, got hold of information that compromises the abolished USSR Minudobreniy [Ministry of Fertilizers; that ministry at first deliberately misled the public about the chemical makeup of the Syrian phosphorites, by not pointing out the presence of radioactive substances in them. A total of 335 tons of uranium and thorium annually was supposed to come to our country with the chemicals being delivered by Syria in accordance with a contract.

Why, for the sake of what profit, did Soyuzagrokhimeksport import from abroad the "dirty" phosphate fertilizer, when the country already had more than enough of its own phosphorus fertilizers? How did this freight shipment get across the state border unhindered? These and similar questions require separate study. But we would like to direct our attention at this time to one thing.

Despite the fact that the sanitation physicians banned the application of the Syrian phosphate fertilizer to the soil (and it is continuing to arrive in the oblast), Agropromkhimiya specialists sent a certain amount of fertilizers for detailed analysis to Moscow, to the Central Institute of Agrochemical Services for Agriculture, and, having received a reassuring response from the departmental laboratory, recently sent its instructions to the rayons. In their opinion, these fertilizers do not represent any danger, and, consequently, they can be used to apply as a dressing for plants.

I read a document signed by V. Panasin, director of the very same chemicalization station that "overlooked" the dangerous radio nuclides in the fertilizers. It's an interesting piece of paper! "Evaluating the data that was received, one can conclude that the content of radium-226, thorium-232, and uranium-238 is within the range of the indicators that are typical of domestically produced and foreign phosphorus fertilizers, and the specific activity is one-half the level established by the specifications for fertilizers." Thus, the hypotheses concerning the high content of natural radio nuclides in the Syrian phosphate fertilizers did not find confirmation. It can be used in the same way as domestically produced phosphate fertilizer, but it is necessary at such time to observe the safety procedures, just as one does when working with pulverized fertilizers...

That's how simple everything is. It turns out that there was no need for worry on the part of the male and female workers who were engaged in unpacking the fertilizer and who swallowed radioactive dust for hours, much less any need for them to strike, as they did in Slavsk. And it is incomprehensible why N. Zagorskiy, chief doctor at the oblast sanitation and epidemiology station, became indignant at the agrochemists' arbitrariness, stating, "Our position remains unchanged! The fertilizer from Syria cannot be applied to the soil, anymore than any other substance that adds pollutants!"

However, let us leave irony to one side. As the expression goes, it would be ridiculous if it weren't so sad. You can beseech yet again: the country needs a single radiation-protection service that is not subordinate to any departments. All right, then: the former Gosagroprom can check itself! According to the instructions that it issued jointly with Minzdrav [Ministry of Health], the "spheres of influence" in the area of radiation monitoring of foodstuffs have been divided as follows: the state sanitation service monitors the sale of food products through the trade network, the public-nutrition system, and cooperative trade; the veterinary service takes care of animal husbandry; and the agroservice monitors the soil and products of vegetable husbandry.

At the oblast Agropromkhimiya Association they pretend today that no emergency had ever occurred. The specialists at the chemicalization station mollify themselves and others by stating that in dispersed form the fertilizers do not represent any danger to man. "Not only that, but the radio nuclides did not get onto every hectare of soil," head radiologist Ye. Ryzhova assured me. "And wherever it does exist, the radiation constitutes only small dosages." Is that dangerous delusion or craftiness? Throughout the entire civilized world today, people adhere to a completely different point of view: small dosages of radioactive emission are capable of threatening the organism much more strongly.

A year or a year and a half ago, Gosagroprom fed infants in the oblast baby food—pureed carrots and apples—in which the amount of nitrates was above every standard. Once again the monitoring had been departmental and carried out by Gosagroprom! Now it has "fertilized" our fields with radium, thorium, and uranium. Aren't they satisfied?

Ecological, Bureaucratic Controversy Over Bashkir AES Detailed

904E0088A Moscow SOVETSKAYA ROSSIYA
in Russian 11 Apr 90 p 4

[Article by Doctor of Chemical Sciences Professor M. Safarov and writer B. Pavlov: "A Dangerous Fault—Departmental Ambitions Are Hindering Evaluation of the Public Arguments Against the Construction of the Bashkir AES"]

[Text] The construction of the Bashkir AES [nuclear power plant] is arousing the anxiety of the public in the autonomous republic. The Bashkir Soviet of the All-Russian Society for the Protection of Nature has thus performed a public-science ecological expert analysis of the plant design at its own initiative. Dozens of scientists from virtually all the scientific institutions of the republic studied all aspects associated with the construction of the plant. What did the analysis show?

The construction began before the comprehensive analysis of the ground on the terrain. It must be said that strong geological services are operating in Bashkiria, and there exists good scientific support for it. The ground

structure of the territory of the republic has been studied up and down. The site selected for the AES was not a blank spot for our geologists either—the specialists knew almost everything about it. But no one asked their opinion, no one tried to consult with them, and a serious “imposition” has thus occurred.

The Bashkir AES [BAES] has been “tied” to a site that is on a tectonic fault, in a hazardous zone. This is confirmed by space-photography data. The region moreover has a seismicity of 5-6. “Disturbances in the soil over the fault,” concludes M. Kamletdinov, director of the Institute of Geology of the Bashkir Science Center of the USSR Academy of Sciences Urals Division, and Yu. Kazantsev, head of the structural-geology laboratory, “could occur at any time...” And then catastrophe is inevitable.

Honored Geologist of the RSFSR and USSR State Prize Laureate V. Yakhimovich was just as categorical in his conclusions: “There was no profound scientific analysis of the geological structure in the design engineering... The insufficient regard for the complex tectonic situation in the region of the AES site unequivocally resolves the issue of the impossibility of continuing with construction.” And later, something quite terrible: “The system of faults occurs not only along the Kama, but directly under the foundations of the AES...”

Even Glavekspertiza [Expert Analysis Main Administration] of USSR Gosstroy [State Construction Committee] noted that “the foundations of all the buildings and structures are on clayey soil and clay with poor bearing capacity.” But that did not alert them at Gosstroy, and they supported the idea of Glavekspertiza deputy Ye. Minayev, who proposed constructing the foundation out of reinforced-concrete pilings up to 18 meters long. The inventor of the idea meanwhile did not answer as to what the pilings themselves would be held up by. And they will sag in the sand-and-gravel sediments of the bottomland terrace of the Belaya River.

The history of the origins of the project near the mouth of the Belaya abounds in such instances. The members of the expert commission of the Bashkir Council of the VOOP [All-Russian Society for the Conservation of Natural Resources] had to familiarize themselves with documents that were surprising in the degree of their absurdity and irresponsibility. One of them, for instance, says that “Allowing for the fact that the start of construction of the Bashkir AES was permitted before the development and approval of the technical plans (!), Gossannadzor [State Committee for Health-Safety Supervision] feels that it is possible to consent to the drawings for the general plan of the BAES as an exception (!).” The signature was that of the deputy chief state physician of the USSR, V.A. Turovskiy.

The consent for the drawings thus moved up the departmental ladder “as an exception.” We are right to ask, from the point of view of the bitter experience of Chernobyl, what “exceptions” there can be when we are

dealing with the atom. But the nuclear-power people are waving false documents around as documents of state importance even today. Whence such arrogance?

The economic substantiation for the construction is also undisputed. Yes, we are still short two billion kilowatt-hours [kWh] of electric power to cover the needs of the national economy in the autonomous republic. But is that really grounds to build a 35-billion-kWh AES? It is well known that the start-up of two new power units of 0.8 million kilowatts [kW] apiece is planned at the Karmanovo GRES [state regional electric power plant] (right next to the BAES) before the end of the 13th Five-Year Plan, which will provide 14 billion kWh a year and cover the growing needs of the republic for electric power with some to spare. And where, by the way, are the calculations for the incorporation of energy-conserving technologies and the development of ecologically clean types of power engineering?

The plans also have no well-defined developments or determination of the place for burying, transport or reprocessing of radioactive wastes or technology for the dismantling of the plant.

The VOOP Council of the Bashkir ASSR submitted the results of the expert analysis to the public-science conference that was held recently in Neftekamsk. The conference adopted this resolution: “The plans for the BAES, being ecologically groundless, economically unsubstantiated and posing a real threat of catastrophic consequences on a global scale to the nature and population of not only Bashkiria, but the whole Volga-Kama basin, must be rejected, and the construction halted immediately. The construction of the AES must be reconfigured into ecologically safe facilities for the national economy.”

USSR Minister of Power and Electrification Yu. Semenov, who was present at the conference and heard the conclusions of the scientists, said that if everything that had been said corresponded to reality, the construction would have to be halted. But several days later, at a session of the USSR Council of Ministers that was broadcast on central television, he complained about the resolution of the “public conference,” for some reason forgetting to add the word “science.” The complaint found understanding among the leaders of the USSR Council of Ministers. This retreat of Yu. Semenov, however, elicited a feeling of dissatisfaction, to put it mildly, with the minister of power engineering—from whose words governmental policy is made in relation to the BAES—in public and scientific circles in Bashkiria.

A conference was held at the office of USSR Council of Ministers Deputy Chairman L.D. Ryabev two days after the session in the Kremlin. BASSR Council of Ministers Chairman M.P. Mirgazyamov there made public the resolution adopted at Neftekamsk. But there was no discussion of a suspension or a halt to the construction of the BAES. It is possible that the Bashkir delegation was to blame for this—they were unable to get across to the

conference participants either the ecological aspects or the economic and socio-economic situation in the republic. A protocol appeared that thus produced an exceedingly contradictory impression.

The Academy of Sciences was instructed to form a commission within a month "for a detailed analysis of the seismic, geological and hydrological features and the well-foundedness of the choice of site for the Bashkir AES." The results of the work of the specialists involved in the public-science expert analysis, in other words, received no attention. Goskompriroda [State Committee for Environmental Protection] was moreover charged with conducting a comprehensive expert ecological analysis of the plans for the AES and presenting their conclusions in June of 1990. USSR Minatomenergo-prom [Ministry of the Nuclear Power Industry] and Minenergo [Ministry of Power and Electrification] were charged with "presenting within a month... the necessary calculations and substantiations confirming the sufficiency of the measures envisaged in the AES plans to ensure safety..."

One might ask how material substantiating the sufficiency of AES safety could be presented in a month if the "comprehensive expert ecological analysis" will only be completed in seven months?! Does that mean that a positive conclusion—that is, the one needed by Minatomenergo—has already been predetermined?

Funds are generously allocated in the protocol for the creation of "a BAES public-information center." The "essential elucidatory work" must be understood unequivocally—in the direction needed by the nuclear-power people and against the conclusions of the Bashkir scientists.

The protocol has another extremely curious clause—a trip to France at the beginning of the year by a group of representatives of the public and people's deputies "to become acquainted with measures to ensure AES safety." One of us, having received a personal invitation to make the trip, thanked the agency for the tempting free trip to Paris, but proposed an alternative instead: it would be better to travel to Sweden, where they have rejected AESs. The agency leadership, however, expressed no enthusiasm whatsoever on that score. I would like to ask the question of the authors of the idea of this trip anyway: are French AESs also situated on faults and quicksand?

The decision that was made on "a comprehensive expert ecological analysis" is nothing more than an attempt to placate public opinion and stall so as to avoid a halt to construction later. But no one can still be disputing today the conclusion of the unfounded nature of the project that was arrived at by the Bashkir scientists. There are still only attempts to brush off our conclusions and ignore them.

A referendum was conducted on the construction of the BAES by decision of the sessions of the Neftekamsk City and Krasnokamskiy Rayon soviets. Some 99 percent of the votes were against it.

Gorkiy Soviet Votes To Halt Nuclear Power Station Project

*LD2505081190 Moscow TASS International Service
in Russian 0449 GMT 24 May 90*

[Excerpt] Gorkiy, 24 May (TASS)—TASS correspondents Rena Kuznetsova and Evald Kessariyskiy report:

The City Soviet of People's Deputies has decided to halt further construction of the Gorkiy atomic heat-supply station, the first such station in the world. Before this, tens of thousands of inhabitants of the ancient town on the Volga spoke out against commissioning of the station, the main capital construction of which was virtually completed. Specialists think that 75 percent of the work has been completed.

A final decision on the fate of the station, which is located five kilometers from housing areas, will be made by the Government of the Soviet Union.

A session of the city soviet discussed problems connected with the fate of both the station itself and its service personnel. There is a suggestion to convert the station on the Volga into an educational center or to re-design it to run on organic fuel. In both cases, the problem of providing employment for people would be resolved at the same time. [passage omitted]

Georgian Research Reactor Being Dismantled

*PM0805144190 Moscow IZVESTIYA in Russian
5 May 90 Morning Edition p 6*

[TASS report: "Reactor Being Dismantled"]

[Text] Tbilisi—Work on dismantling a nuclear research reactor has begun at the nuclear center of the Georgian Soviet Socialist Republic Academy of Sciences Institute of Physics.

It has worked for almost three decades and helped physicists to carry out important research in obtaining a new class of promising structural materials. The institute has essentially fulfilled the functions of the country's umbrella organization for low-temperature radiation materials technology. During all the years of its work the reactor has harmed neither people nor the environment.

However, mindful of its potential danger and of the public demand for the reactor to be eliminated, the Georgian Academy of Sciences Presidium adopted the decision to dismantle the research installation.

Radioactive Contamination Said To Threaten Chelyabinsk Reservoirs

PM0905090590 Moscow KOMSOMOLSKAYA
PRAVDA in Russian 8 May 90 p 2

[Report by ZLATOUSTOVSKIY RABOCHIY correspondent N. Filyanov, followed by editorial comment, under general headline "Killer Water" and subheaded: "Chelyabinsk Oblast Population Concerned About Threat of Contamination of Drinking Water by Radioactive Waste"]

[Text] Chelyabinsk Oblast—Elderly inhabitants of Zlatoust tell the following tale: When the Gromotukha River flooded a defense enterprise in the late forties, Stalin himself tried to find it on the map—but in vain! A small river, but it had done a great deal of damage.

Since then Zlatoust has repeatedly found itself in deep water, but, as one can see, no conclusions have been drawn. For example, the city still has storm drains that were constructed in the last century by order of General Anosov (if only we could remember him). The dam that holds back the waters of the city reservoir was constructed before the revolution. Therefore, when the Ay and Bolshaya and Malaya Tesma Rivers burst their banks after three days of rain, melting the snow on the mountainsides, the gates had to be opened....

In a short time the streets of "Nakhalovka" (which is what people call the settlement of Kirovskiy) turned into a Venice of the Urals. Houses near the Kusa highway were under water. But the inhabitants were not in the mood for the bizarre—they had to sit it out on roofs, cupboards, and so on.

People were rescued by boat—there were no other facilities at hand. The water divided the city in two. The streetcar reached the "watershed," the passengers alighted, waded across, and reboarded.

Funny? Not really....

The workers at the V.I. Lenin machine building plant became unwilling "gondoliers"—the water had risen to a depth of 120 centimeters on the enterprise premises. Seven shops stopped working and the production of "Polyus" refrigerators came to a halt. The open-hearth and electric furnaces at the metallurgical plant were switched to "cold." Metallurgical production was paralyzed.

The water put an electricity substation out of action—a number of areas were left without power. Turbid streams of water were lapping near the rails of the Transsiberian Railroad.

Steps are being taken, as they say. Enterprises are quietly getting their work organized again. But a great deal of damage has been done. In all likelihood it will run into millions (if not tens of millions) of rubles. Housing has

been affected (the residents had repeatedly complained to the authorities that they were sick of living under the threat of a flood).

A woman and a child died.

One could curse the forecasters, of course, for failing to give due warning, or complain about the rampaging elements. But it is not the first year the elements have gone on the rampage! And it is not the first year that flood commissions have been set up. So what good is it! [Filyanov reports ends]

There are several radioactive reservoirs on the territory of Chelyabinsk Oblast, formed as a result of many years of activity by the "Mayak" defense enterprise. Back in March the population was worried about rumors that during a flood they would overflow and drinking water would be contaminated. Our correspondent Sergey Smirnov contacted enterprise Deputy Director Yu. Tarasov. He replied that as a result of technical measures it had been possible to divert the floods from the reservoirs. There had been no marked rise in the water levels in the reservoirs.

Will we live?

Shevardnadze Meets With Group Opposing Nuclear Tests

LD2105193490 Moscow TASS in English 1854 GMT
21 May 90

[Text] Moscow, May 21 (TASS)—Soviet Foreign Minister Eduard Shevardnadze today received Dr. Bernard Lown (USA), USSR People's Deputy Olzhas Suleimenov and Academician Mikhail Kuzin of the USSR Academy of Medical Sciences, leaders of the organizing committee of the "Voters of the World Against Nuclear Weapons" international congress.

Prospects for the complete termination of nuclear tests were discussed in detail during the meeting. Speakers emphasized the importance of this issue in efforts to eliminate nuclear arms.

A ban on nuclear tests or a radical curb on them as an intermediate stage would put a serious obstacle to the modernization and development of new types of nuclear weapons, speakers said.

Special attention was paid to the ecological dimension of the nuclear testing problem. Speakers shared the concern of the public at large in the Soviet Union, the United States and other countries about hazards to people's health during the continuous upgrading and build-up of nuclear arsenals.

Participants in the meeting praised the Soviet Union's efforts to ban nuclear tests and noted the importance of the unilateral moratorium, introduced by the USSR in 1985-1986, on nuclear explosions. The Soviet Union's

readiness to resume the moratorium at any time on the basis of reciprocity with the United States was reaffirmed.

Shevardnadze informed the guests of an agreement reached during U.S. Secretary of State James Baker's recent working visit to the Soviet Union. The two sides agreed to sign verification protocols to the 1974 and 1976 Soviet-American treaties on the limitation on underground testing of nuclear weapons and on nuclear explosions for peaceful purposes, with a view to continuing Soviet-American talks in order to further limit and ultimately ban nuclear tests.

Speakers noted the close interrelationship between efforts to ban nuclear tests and to enforce non-proliferation of nuclear weapons. They emphasized the importance of internationalizing the actions of states in these two directions, including within the framework of the conference on disarmament and at the forthcoming conference to review the nuclear non-proliferation treaty in August-September.

The need to synchronize the efforts of governments and the public to stop nuclear tests completely was pointed out during the meeting.

Kazakh Committee Calls for Semipalatinsk Test Site Closure

LD2105163490 *Alam-Ata KAZAKHSTANSKAYA PRAVDA in Russian 12 May 90 p 2*

[By KAZTAG parliamentary correspondent M. Chirkov]

[Excerpts] Whereas in other committees and commissions of the Republic's new parliament the temperature of discussions on nominations for membership of the government sometimes reached the critical mark, necessitating several adjournments, nothing of the sort happened in the Committee on Issues of Ecology and the Rational Use of Natural Resources. Its members took just over an hour to examine the issue of the nuclear site in Semipalatinsk Oblast. And this was the verdict: The test site must close!

There is obviously no need to cite all the figures and facts that were brought up at the session. The people of Kazakhstan are all too familiar with them. [passage omitted: studies have shown evidence that radiation has had negative consequences for local population]

But here is something which does need to be said. Many of the committee members' questions were left hanging in the air, as they say. None of the specialists who had been invited could answer them, or wanted to answer them. For example, why is it that the Republic's Academy of Sciences has only just got down to work, when permission to study the site was given quite some time ago? Why has the veil of secrecy still not been lifted from the results of the study of the consequences of nuclear testing near Semipalatinsk? For how long will

this game of keeping things secret from one's own people continue? Especially when the people themselves are suffering from this "game". [passage omitted: Nevada-Semipalatinsk movement members took part in the session and spoke up against the test site]

To fail to meet the need of the people would be to lose their trust, decided the committee members. And so they voted unanimously to recommend that the first session of the Kazakh Soviet Socialist Republic Supreme Soviet should ban tests at the nuclear testing site in Semipalatinsk Oblast. h1

Kazakh Deputies Back Closure of Semipalatinsk Range
PM1605075790 *Moscow IZVESTIYA in Russian 15 May 90 Morning Edition p 2*

[IZVESTIYA correspondent Vladimir Ardayev report under the "Direct Line" rubric: "Session Continues Its Work"]

[Text] Alma Ata—The first session of the Kazakh SSR [Soviet Socialist Republic] Supreme Soviet resumed its plenary sittings 14 May after a recess.

Deputies spent a week working in commissions and committees, where they discussed the composition of the republic's government, along with the draft laws which are to be examined and adopted at the session—on the judicial system, ownership, peasant farming, and others. By no means all the debates went smoothly. There is perhaps only one example of unanimity among deputies that can be cited—when considering the future of the Semipalatinsk nuclear testing range in the Committee for Questions of Ecology and the Rational Use of Natural Resources. The committee members unequivocally advocated that it be shut down.

Another question unexpectedly facing the session after its recess is the possible resignation of S. Tereshchenko, the republic's deputy president who was elected to this post only a few days ago. The point is that the Chimkent Oblast party conference elected him party obkom [oblast party committee] first secretary. Deputies are faced with a dilemma—either they accept the party conference decision and relieve S. Tereshchenko of his post, or they confirm their previous decision.

Investigation Shows Radar Facility Harmless

PM3004131790 *Moscow IZVESTIYA in Russian 27 Apr 90 Morning Edition p 6*

[Interview with ecological commission members A. Kuzmin and Aviation Colonel General V. Kraskovskiy by N. Burbyga under the rubric "Rumors and Facts": "Radio Signal Repulsed by Public Opinion"]

[Text] As has been reported in IZVESTIYA (No 59, 1990), the construction of the major radar station outside the village of Pestryalovo, in Transcarpathian Oblast, was suspended at the end of February. A commission, led by Academician Ye. Velikhov, was set up to assess the socioecological situation in the vicinity of

Mukhachevo and the effect of the new radar station on the populace and the environment. The commission members are scientific and technical experts from the USSR Academy of Sciences, the Ukrainian Soviet Socialist Republic [SSR] Academy of Sciences, the USSR Defense Ministry, Radio Industry Ministry, and Health Ministry, and members of the Transcarpathian Oblast public. It completed its work recently.

Our correspondent met with commission members A. Kuzmin and Defense Ministry representative Aviation Colonel General V. Kraskovskiy.

[Burbyga] First of all: Why do we need such large-capacity radar stations that frighten people living near them?

[Kraskovskiy] As is known, there are tens of thousands of objects of diverse provenance currently in near-earth orbit. There are defunct satellites and chunks of delivery vehicles regularly raining down on the earth, following near-ballistic trajectories. Clearly, a skilled and responsible assessment has to be made. Moreover, the United States has in recent years armed itself with new ballistic missiles with highly accurate multiple warheads—MX, Trident-2, and Midgetman. It was necessary, therefore, to modernize existing large-capacity radar stations capable of tracking objects in space. We can use them to obtain information in the event of a nuclear missile attack and to determine the time and space characteristics: the number of ballistic missiles in flight, their trajectories, the predicted point of impact....

[Burbyga] Obviously, stations of this kind are not exactly weak. Perhaps the populace really does have cause for concern. What did the expert appraisal indicate?

[Kuzmin] The commission's conclusion—I emphasize that it included representatives not only of "interested" departments, but also independent scientists, experts, and public figures, and they were unanimous in their assessments—is as follows: There is no possibility of the radar station's having a harmful effect on people. I will cite its findings: "The effective planned power of the radar station's electromagnetic waves will not exceed the norm set by health standards and the rules governing the protection of the population from the effects of electromagnetic waves created by radio engineering facilities." This means that on the territory adjoining the radar station health-protection zone the predicted electromagnetic waves will not exceed 10 microwatts per square centimeter, which is comparable to the output of powerful television transmitters and domestic UHF appliances. This is the lowest permitted level. Our norms for the population are significantly lower than U.S. standards and the recommendations of the international committee for protection against nonionizing radiation. However, in view of the sociopsychological situation that has taken shape in the area, the commission agreed to reduce these norms. It was recommended that the electromagnetic waves be reduced hundreds of times over.

[Burbyga] So why are passions running so high over the facility that is under construction?

[Kraskovskoy] The reasons lie in ill-informed people and our "hypervigilance." Judge for yourself. A facility is under construction and the populace is initially told that an air force base is being constructed, and then the antics become utterly absurd.... In short, everything was done to generate rumors and conjecture that a nuclear reactor was going to be installed at the facility.

[Burbyga] Nevertheless, people's mind's were not put at rest when they discovered it was going to be a radar station—they started making new demands, ecology-related. Perhaps the radar station should have been constructed in another place with a smaller population?

[Kuzmin] Its positioning is not a whim on our part. We have several radar stations in the Western area, one of them in Kuldigskiy Rayon, Latvian Soviet Socialist Republic [SSR]. The site was chosen on the basis of experts' conclusion and the demands of the detection system. The population's safety was taken into account as a matter of course. Moreover, the 1972 USSR-U.S. treaty "On the Limitation of ABM systems" says that missile attack warning systems must be deployed on the periphery of national territory and be oriented outward.

[Burbyga] The population of Transcarpathian Oblast is having problems with drinking water. Now they have the radar station, which will require large stocks to keep it going....

[Kuzmin] A water supply has been surveyed and constructed for the radar station. The commission came to the conclusion that it does not endanger mineral water stocks. There is little likelihood of the water supply's affecting the subsoil water level in nearby population centers. A technique was found of reducing the radar station's water consumption by between two-thirds and four-fifths. The water that is saved will be used to meet the population's needs.

[Burbyga] You mentioned the radar station on the territory of the Latvian SSR. What is the situation there?

[Kuzmin] When the radar station was put there, everything had seemingly been taken into consideration. It was a remote, swampy area. But we were still reproached by people saying that the radar station would emit electromagnetic radiation.

We are willing to discuss things with the population. We are willing to show them everything. Moreover, in order to relieve the psychological tension we proposed setting up a permanent measuring laboratory on wheels, which would have members of the local populace working in it. We are drawing up a health record, which will reflect all the parameters and characteristics of the electromagnetic field. The radar station will not be launched until everything is as it should be.

[Burbyga] What similar systems do they have in the United States? Where are they located?

[Kraskovskiy] The U.S. nuclear missile attack warning system is based on space and ground reconnaissance facilities. There are radar stations on the ground. They are located both on the U.S. mainland (six radar stations) and on the territory of other states—in Greenland and Britain. We regard this as a contravention, but the Americans argue that the stations were put on other countries' territories long before the treaty was signed.

And another thing: U.S. permitted health norms are more than 10 times higher than ours. As a rule, the facilities are located in densely populated areas. But this does not pose any special problems. Because both the local authorities and the military explained things to the populace in good time.

I would add to this the fact that the presence of radar stations both in the USSR and in the United States is envisaged by the relevant treaties. And this balance must not be upset.

Scientists Criticize Transcarpathian Radar Station

PM1505085590 Moscow IZVESTIYA in Russian
12 May 90 Morning Edition p 2

[Letter from Doctor of Biological Sciences Professor V. Komendar and others under the rubric "From Editorial Mail": "Once More About Radar Station in Transcarpathia"]

[Text] In the course of a month three central newspapers (PRAVDA 1 April, KRASNAYA ZVEZDA 7 April, and IZVESTIYA 27 April 1990) published items setting forth the viewpoint of representatives of the USSR Defense Ministry on questions of the construction of a powerful radar station in Transcarpathia close to Mukachevo as a center for tracking targets in space. All the publications took as their basis the opinion of one and the same person—Colonel General V. Kraskovskiy, a spokesman for the USSR Defense Ministry. Let us note that V. Kraskovskiy, like the authors of this item, was a member of the state commission which under the leadership of USSR People's Deputy and Academician Ye. Velikhov in February through March this year comprehensively studied this question. The commission reached the conclusion that it be recommended to the country's government that the construction of the radar station in Transcarpathia be halted.

Democratization and glasnost are revealing instances of the unjustified use of state funds in the Defense Ministry, too. Today it is no secret that a whole series of grave omissions were allowed in planning and creating an extremely expensive missile attack warning system in the country. The monopolism of the department concealed by super-secrecy led to the point where the enormous sums spent on the construction of the Krasnoyarsk and Ulyanovsk radar stations, which were recently closed, had to be cast to the wind. And now the question is whether the Transcarpathian radar station is to be or not....

Military specialists assert that the planned yield [moshchnost] of the radar station's electromagnetic flux will not exceed normative doses. But the calculations done by physicists included in the commission showed that the planned flux density for the radiating power [plotnost potoka moshchnosti izlucheniya] close to the population centers some 1.5 km from the radar station is 2 to 2.5 times higher than the normatives. In addition after a while the protective functions of the oak and beech forest could be completely nullified because the forest could perish because of the lowering of the level of underground water, because of fire, wind-fallen trees, or the unfavorable effect of the station. Then the radar station's radiating power flux density in the region of the villages of Pestryalovo (just 400 meters away), Lalovo, Borodivki, Leskovoye, and others will be 100-1,000 times in excess of health norm requirements. These considerations are confirmed by full-scale experiments conducted at an existing radar station whose radiating power is many times less.

In addition today science has little knowledge of the consequences of the long-term effect of low-yield electromagnetic fields on man and his habitat. No one has proved that electromagnetic radiation is harmless to man. But it has been established that with chronic radiation of intensities even lower than the thermal threshold [teplovoy porog] there are functional disorders manifested in premature tiredness, sleepiness, and headache, there are disorders of the nervous system, and disruptions of normal psychological activity are possible. Yet Pestryalovo village is in the field of operation of one of the "offshoots" of the radar station's radiation pattern and will consequently be subjected to systematic radiation.

There are dozens of sanatoriums, rest homes, pioneer camps, and unique mineral water sources close to the radar station under construction. It is also essential to point out that several oil and gas pipelines and powerful electric power lines pass through the region to West Europe. At the same time there are 0.16 hectares of arable land per capita in the oblast, which is six times less than the average for the Ukraine.

There are great difficulties in the oblast in supplying the population with drinking water. The operation of the radar station will simply aggravate the supply of water to a dozen villages and to Mukachevo City and will also have an adverse effect on the underground water level, which will lead to the death of unique oak and birch groves, including the grove now regarded as defense against the station's radiation.

We realize that to create a radar belt around the Soviet Union a station of this kind must also be constructed in the West of the country. But we are also firmly convinced that there is no place for it in one of the most densely populated regions of the country and of Europe.

[Signed] Doctor of Biological Sciences Professor V. Komendar; Doctor of Physico-Mathematical Sciences Professor S. Pop; Doctor of Medical Sciences Professor

F. Telichko; Doctor of Physico-Mathematical Sciences
Professor I. Khimich; Doctor of Physico-Mathematical
Sciences Professor V. Khiminets.

Opposition to Transcarpathian Radar Station Noted

LD2205122790 *Moscow Television Service in Russian*
0230 GMT 22 May 90

[From the "Television News Service" program]

[Text] There are hundreds of correspondent working on Soviet television and each of them tries to send his own reportage to our program. Sometimes, some of the reportages can be seen only on our program. You will see one of them now. It's no secret that a missile attack warning system is being built in our country, something that is provided for by the ABM treaty. The system's installations are located on the periphery in so-called missile danger sectors. But the implementation of this plan is now in danger of being frustrated. First the construction of the Krasnoyarsk radar station was halted, and now there are even louder demands to stop the construction of a similar installation in Transcarpathia. Here's Boris Barbil from Uzhgorod.

[Begin recording] [Barbil] We are among the journalists to whom the Ministry of Defense has, for the first time, given permission to take pictures at this installation for the "120 Minutes" program. Its construction has been underway for five years, and for five years great passions have been seething around it. This is a centre for tracking objects in space, or a radar station. Around R100 million have already been assimilated of the 160 million allocated.

For a long time the military kept the purpose of this enormous installation a total secret. They told the local people that they were building some repair base. The whole truth was told just recently when mass protest meetings began. The Transcarpathians were annoyed that it was intended to build a mighty radar station close to the densely populated town of Mukachevo, a seismic zone and an area where there is very little water. According to some specialists, electro-magnetic radiation will destroy gardens, forests, and vines. Therefore a referendum was held in Transcarpathia; 800,000 people put their signatures to a demand that construction of the radar station be halted. This demand was supported at sessions of the oblast soviet and the Ukrainian Supreme Soviet. A state commission headed by Academician Velikhov stated that it would be expedient to halt the construction and convert the station to a different purpose. The final decision is now to be taken by the USSR Council of Ministers. However, the position of the military remains the same.

Comrade Lieutenant Colonel, don't you think that this is the fault of our system of enormous secrecy at every step? Would it not have been possible to go to the people from the very start and tell them?

[Ye. G. Ivanov, sub-unit commander—identified by caption] For our part, we made this information known as much as three years ago. We reported it to the party organs, to the Transcarpathian deputies, we reported it to representatives of the industry that operates here. There were repeated visits to installations. We reckoned that the party organs, party authorities, would carry on their activity in the labor collectives, precisely, that they would report the information which we had reported to them. But we were totally wrong in our calculations. On the nuclear reactor, in particular, none of the representatives who were at the installation said at a single gathering, a single conference, or a single meeting: Comrades, this is not so.

[Barbil] Is there a reactor or not?

[Ivanov] There are no reactors at the installation.

[Barbil] Generally people have been saying everywhere at the meetings that the installation will cause enormous damage.

[Ivanov] No installation has caused any damage to anyone. The installation is designed to enhance our country's defense capability. If there are all saying that our defense capability is a source of damage, then I can't understand that. The installation will cause no ecological damage because the conclusions of one commission headed by Shestopalov and the conclusions of the second commission which was headed by Comrade Velikhov were that the installation is the cleanest to have been built in Transcarpathia.

[Barbil] Well, time will tell who is right.

[video shows building work in progress, military sentries on duty at entrance to site, long-distance view of installation] [end recording]

Admiral Interviewed on Novaya Zemlya Test Ground

PM0305113390 *Moscow IZVESTIYA in Russian*
3 May 90 *Morning Edition* p 4

[Interview with Vice Admiral G. Zolotukhin, chief of a Navy directorate, by "our correspondent" V. Litovkin under the rubric "Details for IZVESTIYA"; date and place of interview not stated; first paragraph is introduction: "Novaya Zemlya: Northernmost Testing Ground"]

[Text] The existence of the nuclear testing ground in Novaya Zemlya has long been no secret, although extremely little information about it "percolates" to our press. How matters stand there, how the nuclear weapons tests are affecting the ecological situation of the Far North and the health of the people living there—these and other questions from our correspondent are answered by USSR State Prize winner Vice Admiral G. Zolotukhin, chief of a Navy directorate.

[Litovkin] Gennadiy Yevpatyevich, what is the country's northernmost testing ground like, what is the history of its creation? Not a single reference work contains this information....

[Zolotukhin] Until recently this information was a state and military secret and its publication was not envisaged, to put it mildly.... So, the testing ground was created in July 1954 by a decision of the USSR Council of Ministers. You do not have to recall the complex situation of those years: the height of the cold war, the policy of deterrence and the arms race it imposed. Nuclear missile weapons began to be created in our country. The testing ground in Novaya Zemlya was intended for testing these weapons, improving them, and "finishing them off."

Its dimensions: 750 km long and 150 km wide. It occupies 90,200 square km, of which 55,000 are dry land. I recall that the area of the entire archipelago is 83,000 square km. The northern island is a dense glacier, in area the largest in the country. Arctic tundra determines the appearance of the southern island.

I add that the islands were virtually uninhabited and were hundreds of kilometers from the nearest population centers. And the region of the tests complied almost ideally with the required geophysical, geological, meteorological, and technical and economic indicators. Suffice it to say that even today in wind rose terms—a very important parameter for testers—it is one of the stablest regions of the Arctic.

The distance from the testing ground's southern borders to Amderm City is 280 km and to Vaygach Island, where several dozen people live in Varnet settlement, it is 180 km. And the geological structures of the lands of the Northern hemisphere are so unique that they rule out even the slightest seismic effect on adjacent regions.

[Litovkin] You spoke of the absence of people. But the Nenets lived in Novaya Zemlya itself and Northern Fleet ships were based there.... Some specialists assert that these islands are rich in minerals....

[Zolotukhin] Let's be precise. As for the Nenets, by 1954 there were only 104 families living at Belushya Guba encampment who had migrated there at various times from Pechora. In connection with the need to create the nuclear testing ground the Soviet Government asked Tyko Vylko to examine the possibility of their resettlement on the mainland, in their fathers' home. At a rally of the island soviet this decision was taken.

It was not a base but a moorage for Northern Fleet ships which appeared on the archipelago during the war. It became the basis for creating a settlement of testing workers. And the first Russian seamen arrived here back in 1870, on the ships Varyaga and Zhemchuga.

There are no industrial stocks of minerals there. Nor are there any on Kolguyev Island. There are small deposits of copper, zinc, and zinc and lead ore on Baygach but

their development is economically inexpedient. All this has become an additional argument in favor of using the testing ground.

Its feature is that at the first stages of the tests on nuclear weapons high-yield explosions were carried out in the air (their altitude varied from three to 10 km). And there was also a small number of underwater, surface, and ground explosions. The selection of the altitude for the detonation ruled out high levels of contamination of the surface below. In the 30 years since tests ended in three environments the levels of gamma radiation from natural decay are now at the level of the earth's natural radiation background.

[Litovkin] But nuclear weapons tests, albeit underground, are continuing. Where is the guarantee that as a result of someone's negligence or for some other reason there will not be a disaster? People are worried that because of the testing ground the ecological situation in the Far North has been exacerbated. Are such fears caused merely by the lack of information about the real danger of the tests which are being carried out at the testing ground or are there indeed grounds for anxiety?

[Zolotukhin] I want to say frankly that we too are to blame for this anxiety—secrecy has left its mark on everything. Of course, even now the testing ground is not the place for a stroll, but we will resolutely rectify the situation and give people reliable information about everything happening there. I hope that our meeting is only the first step in this direction and will be followed by others.

But the testing ground is not to blame for the exacerbation of the ecological situation in the Arctic. It is the result of the technogenic facts of man's multifaceted and, it must be frankly admitted, thriftless activity in developing the resources of the Far North. The oil, gas, and metallurgical workers, miners, and geologists have "had a hand" here.... In brief, many departments have been involved. In my view it is not very fair, to say no more, to blame everything on the military alone.

As for the radiation situation, the monitoring of its state, both daily and during tests, is conducted with the use of special highly sensitive aviation, naval, and ground-based facilities. And this is by no means narrow departmental monitoring. In addition to the special services of the testing ground and the Defense Ministry, monitoring is carried out by posts of the State Committee for Hydrometeorology, the USSR Health Ministry, and various institutes of the USSR Academy of Sciences.

In particular, at the end of last year a radiation and ecological monitoring laboratory-aircraft carried out an expert study of the background radiation situation over the country's northwest territory along the Arkhangelsk-Naryan-Mar-Vaygach-Novaya Zemlya route at altitudes from 100 meters to 3,000 meters. A 20-mile zone in the islands from the Barents Sea side was also studied. Experts from the Defense Ministry, representatives of the center for public information on nuclear energy, and scientists from the Lithuanian SSR [Soviet Socialist Republic] Academy of Sciences Physics Institute took part in the work.

In releasing specific figures—they are accessible—I shall say that no anomalies in the natural ecological situation for which the testing ground was to blame were revealed. The scientists' conclusion frankly states that the testing ground in Novaya Zemlya is not ecologically dangerous.

But on its territory there are sectors with enhanced ionizing radiation, about one milliroentgen an hour. Those are the regions where ground tests were carried out until 1963. They are of course closed. No one is allowed there, inside the cordons sanitaires.

In individual cases when carrying out underground nuclear explosions the radionuclei of inert gases may sometimes be observed coming to the surface. But their number is extremely insignificant and has no serious influence on the environment.

And if we are speaking of safety guarantees? I fear that reference to our people's high degree of professional competence and their painstaking and comprehensive preparation and organization of work is not persuasive today. Everyone realizes that a nuclear explosion is a potentially dangerous experiment. Anything could happen. But I shall cite the following argument. I myself spent a total of about five years at the testing ground and some of my directorate colleagues have spent 10 years or more. Some of them have had children born and raised there. Incidentally, the maternity department on the archipelago is never idle. Every year 17-20 babies are born there. The testing workers' settlement has its own primary school, swimming pool, and club.... I am sure that if people's health were threatened by any danger there, it would be impossible to lure them there for any money. Indeed, their salaries are not that high....

[Litovkin] Nonetheless, Gennadiy Yevpatyevich, how do you reconcile the very existence of the nuclear testing ground and the military's tests there with the idea of a nuclear-free zone in northern Europe which our government has put forward?

[Zolotukhin] You know, I would divide your question into two separate ones. First. The nuclear testing ground is an institution, an establishment of the Defense Ministry. It has come to pass historically that the military exercise has jurisdiction over it. But nuclear weapons are the property of the country's government. Their verification, improvement, and testing—all that is planned by the government and carried out according to its resolution. And not only with a view to consolidating combat readiness but also in the interests of fundamental scientific research. The very subtle physical processes taking place during a nuclear explosion so far cannot be reproduced by any means other than under the conditions of a testing ground. It is no accident that outstanding Soviet physicists like Yu. Izrael, Ye. Negin, M. Sadovskiy, Ye. Fedorov, G. Tsytkov, and others once worked in Novaya Zemlya.

About the nuclear-free zone. We fully support this proposal. We are prepared for its implementation, although it will cost us a very great deal. But frankly not everything here depends on us or on the North European

countries extremely interested in this. Other states must also renounce nuclear tests. In particular the United States. Or at least agree with us to reduce them to an absolute minimum—including in terms of yield.

[Litovkin] And how do matters stand at the testing ground today? What are its prospects?

[Zolotukhin] Our testing ground has been "silent" since 4 December 1988. Its further fate is in the hands of the USSR Supreme Soviet and the government which—I am convinced—are no less concerned than the military with keeping the combat readiness of the country and its armed forces at the appropriate level. It is up to them.

Space-Related Debris Being Cleared From Tundra

PM1805071190 Moscow SOVETSKAYA ROSSIYA
in Russian 16 May 90 First Edition p 3

[Unnamed TASS correspondent report: "Metaled Paths"]

[Text] An operation to clean up space "debris" from the spring tundra has begun. For the first time, specialists from Plesetsk Cosmodrome are searching for and collecting spent stages of launchers and other parts of space equipment.

The operation is the result of new ecological thinking in the space sphere. The launch trajectory of satellites from Plesetsk Cosmodrome takes them over the Nenets tundra. Jettisoned launcher parts are disposed of here, in no-man's-land. A lot of "metal from heaven" has accumulated in the Arctic over the 30 years of regular launches. And the "piles" of this material are by no means harmless. They lie in the traditional migration paths of deer herds. The animals cut themselves on twisted metal fragments. Besides, large pieces were destroyed in the past by explosions, thus only increasing the danger of deer getting wounded. Now all space "debris" in the tundra will be collected and taken away.

"As of this spring, detailed ecological work will be carried out after each launch," V. Spiridonov, chief of department at the cosmodrome, noted. "Technology is being developed to collect and destroy the remains of space equipment."

Yablokov Views Tyumen Gas, Oil Complex Development Ecology Concerns

90WN0027A Moscow POISK in Russian No 13,
29 Mar - 6 Apr 90 p 3

[Interview with A. Yablokov, Deputy Chairman of the USSR Supreme Soviet Ecology and the Rational Use of Natural Resources Committee, by Aleksandra Mukhina: "In Short Supply - Clean Air"]

[Text] For more than a year a discussion has been going on regarding the construction in the Tyumenskaya oblast of large-scale oil, gas and chemical complexes. POISK organized a public, economic study of the Tyumen problem and offered the results to our readers in the

article, "Tyumen: A Step Towards Disaster?" (POISK No 6, 1990). Our experts, workers from the Institute of Economics and Forecasting Scientific-Technical Progress, Doctor of Economic Sciences A. Nekrasov, Candidate of Economic Sciences G. Sychev and Senior Scientific Worker V. Lopukhin, voiced their views on the problem. According to the specialists' evaluation, the Tyumen plan could deal a crushing blow to our economy. Ecologists also criticize the project. We asked Aleksey Yablokov, corresponding member of the USSR Academy of Sciences and deputy chairman of the USSR Supreme Soviet Ecology and the Rational Use of Natural Resources Committee, to explain the ecological aspect of the problem.

[POISK] The official version regarding the construction of the oil, gas and chemical complexes is that the new facility will be "clean" and safe. You have a different point of view. Why?

[YABLOKOV] During a meeting in the USSR Council of Ministers the leaders of ministries and departments and specialists who are directly involved with the complex under construction actually tried to convince the people's deputies that the complexes will be ecologically "clean." However, the government was not able to prove the safety of these facilities to us. The data which I have obtained from "green" organizations abroad force me to seriously doubt the "cleanliness" of the complexes. However, without the corresponding documents and without having conducted a serious ecological impact study, it is impossible to make a definitive decision. But it is already clear that the new construction signifies a disruption of the ecological balance over a wide area. For example, the largest TETs in the world is in Surgut and the ecological situation there is already dramatic. Therefore, the planned complexes might become the last straw...

There are more than enough arguments "against." We are familiar with numerous examples when Western firms have taken advantage of the economic difficulties of our country in order to force ecologically "dirty" industrial production on us. Besides that, we cannot ignore the obvious fact that any construction in the area of permafrost is fraught with serious consequences. The thawing soil gives off large quantities of gases into the atmosphere. But this problem was not even mentioned in the project calculations!

[POISK] In the extraction of oil a huge quantity of hydrocarbon compounds is burned up, billions of cubic meters of gas. Advocates of the project promise that when the new enterprises are put into full operation the torches will stop polluting the atmosphere since the natural gas which is burned in them today will be completely processed "tomorrow."

[YABLOKOV] The story of the torches is rather entertaining. At first the former oblast leader announced that the new complexes will resolve all the problems associated with concurrent gas. The industry minister, N.

Lemayev, later in answer to a delegate's direct question said that "about 70 percent" of the torches would be extinguished. According to the data of our experts, however, no more than 20 percent would be turned off. According to the other, most optimistic predictions, no more than 50 percent.

Scientists have been witnesses to how Bashkir, Orenburg and other oil refineries have turned their own regions into ecological disaster zones. The air there, figuratively speaking, is pure petroleum products. However, do we need yet another "disaster zone?" After all, we need to build so that the ecological situation improves and not vice-versa. Apparently, not everybody in the government understands as yet the ecological imperative.

[POISK] If the declarations of the project's advocates are to be believed, the leadership of the national okrugs, as well as the nonnative population, are totally in favor of the complexes. So before building, it turns out that they consulted the inhabitants of the Tyumenskaya oblast?

[YABLOKOV] Consulted? That's a new one. In all a couple of dozen people attended the meeting which was called by administrative order. They are the ones that supported the idea of construction. But at other meetings which the "greens" held, not dozens but thousands attended! There severe criticism of the project was heard. We have petitions in our committee signed by more than 20 thousand local inhabitants protesting the new construction project.

Ignoring the opinion of the Tyumen residents is not only wrong but it is dangerous. After all, this could lead to conflict in the region and then the unfinished complexes might be just erased from the face of the earth, and hundreds of millions of rubles thrown to the wind.

[POISK] So the project was not thought through. How, in your opinion, should it have been accomplished?

[YABLOKOV] Before beginning a construction project, you need to have a fundamental scientific basis for the project. Naturally, it has to be coordinated with the region's development plan. However, in our case the projects for the complexes were not coordinated with the long-range development plans of the Tyumen region. The new project, by the way, was also not correlated with the future development of the chemical industry on a national level.

[POISK] As I understand it, we are talking about a complex impact study. Who should do the study?

[YABLOKOV] In our case the state ecological impact study came out against the complexes. However, the deputy chairman of Gosplan [State Planning Commission] in a speech before the deputies, announced that the result of the ecological impact study was positive. That is pure falsification, juggling the facts.

The chairman of Goskompriroda [State Committee for Environmental Protection] at the same meeting confirmed that the ecological impact study had given a

negative response. It seems to me that after such an embarrassment the official who lied should resign! We are thinking now about whether he should be made to answer - procedures provide for harsh sanctions for knowingly giving the deputies false information.

Today nobody has to be convinced of the necessity for an objective, competent study by experts. We are talking about the status of the commission of experts and the mandatory consideration of the conclusions reached by the specialists. We are also talking about the liability of officials for falsifying information obtained from scientists.

[POISK] Aleksey Vladimirovich, it seems to me that you are defending the priority of the state commission of experts. However, society now is going to the idea of a different type of commission of experts, an independent, public one...

[YABLOKOV] I can't agree with you. "State" experts can be sufficiently objective and independent, if they adhere to one important condition. And namely, we cannot allow the departments to pay the commission of experts. This is a kind of legal bribery. During the work of the commission of experts on the Moscow Northern TETs approximately half of the specialists were associated with the departments. The result was not difficult to predict.

The opinion that the public expert is more competent than the "state" expert is mistaken. Today we are becoming witnesses of how leading specialists in one area or another successfully play both roles. The important thing is just to choose the group in such a fashion that each of its members is a renowned specialist. The urgent problem is something else. How to force the departments not only to listen to the opinion of the experts but also to build their economic and ecological policy based on the results of the study? I once participated in a state ecological impact study on the Southern-Ukraine nuclear power station. We gave a negative response but the Ministry of Atomic Energy ignored our decision and the government supported...the ministry. If the government won't listen to the opinion of a group of experts created by its own will, then public experts will be even less able to influence the course of events.

Of course, an independent public commission of experts has a right to exist. Any study is good if it is objective and produces results. But first of all we currently need to elevate the status of the state ecological commission of experts.

[POISK] In the West according to legislation any project must include a declaration of the project's authors on the possible impact of new construction on the environment. In our country the expert acts as a criminal investigator. In the West, however, it is economically disadvantageous to hide the truth. If it turns out that the new construction will pollute the environment to a greater degree than the project's authors had declared, then the firm suffers colossal losses and can even be put out of

business all together. It is therefore advantageous for the project's authors to exaggerate the possible consequences, to be overcautious. Isn't it time that we too punished cheaters mercilessly?

In the West a firm invites renowned specialists for consulting services; it is advantageous that the results of the study be objective. Besides, the project will undoubtedly be published in the press and the opinion of the inhabitants of the city or state in this regard will be noted. But in our country responsible officials stoop to falsifications! If this had happened in the West, he would have immediately lost his credibility and his job...

Minister Lemayev Defends Petrochemical Projects

PM0805090190 Moscow IZVESTIYA in Russian
26 Apr 90 Morning Edition p 2

[R. Lynev report under the rubric "Viewpoint": "We Are Burning Off Our Opportunity to Become a Modern Country," Minister N.V. Lemayev Asserts"]

[Text] At the beginning of last year a question arose in the press, and in IZVESTIYA above all (No. 94: "One More 'Construction Project of the Century'?"). Although a specialized question, it nonetheless affected many people: the head of government, the scientific public, thousands of inhabitants of Tyumen Oblast, practically every one of us.

It was a question, let us recall, of yet another "construction project of the century," more precisely of a project to create five complexes in Tyumen Oblast to process a valuable raw material—casinghead gas, a byproduct of the extraction of oil that is flared off, not without harmful consequences for the environment and people's health. If comprehensive use were made of it, industry would gain new materials and rise to a modern level, the consumer market would acquire a mass of new goods, and these goods could squeeze crude oil in the structure of Soviet exports. It was with due regard for this that the government approved programs for the construction of the five complexes and the level of expenditure, part of which was taken on by foreign firms on the condition that they would be guaranteed part of the profit on sales of the future enterprises' finished products by way of compensation for the credits.

Everything in that project would have been tolerable, as it were, only the cost of the proposed construction work—R41 billion—plunged the group of scientists who sent the aforementioned letter to IZVESTIYA into a state of shock. Worse than that, in their opinion, the project would actually cost not R41 billion but R100 billion—against a state budget deficit of R120 billion. It turned out that the Soviet side—the hosts, to whom would fall the lion's share of the expenditure plus the strain on the environment—would have to bear the brunt of the risk in the upcoming venture, while the foreign partners would take most of the finished products and of the profits on sales of them. This was the belief of the project's opponents, who proposed using the

billions of rubles not to construct new enterprises in the north but to modernize old, totally worn-out petrochemical enterprises. To judge from the mail, readers' sympathies inclined more toward this viewpoint.

The year since that publication has passed in arguing, in amplifying the sides' positions, and in checking and correcting calculations. Arguments have taken place at rallies in Surgut, in scientific circles, and at the Council of Ministers. Work has been done which ideally should have preceded the adoption of the government decisions, ensuring their reliability and validity.

What, then, is the result of this work? Have the project's opponents succeeded in burying it, or have its supporters prevailed? To resort to a sporting analogy, the former might believe that the score today is four to one in their favor: Of the five projects—at Uvat, Nizhne-Vartovsk, Novyy Urengoy, Surgut, and Tobolsk—four have been frozen. Only Tobolsk has held out, where the project is essentially a development of the already constructed petrochemical combine, although a number of questions persist with regard to it too.

But the project's supporters feel that they have scored a three-to-two win. They maintain that the remaining questions are not insoluble with regard to Tobolsk, Surgut, and Novyy Urengoy and that it is necessary to resolve these questions more quickly—"time is money"—and to seek a way of bringing the different viewpoints closer together.

To get away from the soccer analogy, let us explain here that all five projects were conceived under the auspices of four different ministries, including ministries that no longer exist: The Uvat complex came into being in the system of the Ministry of the Production of Mineral Fertilizers, the Novyy Urengoy complex in the Ministry of the Gas Industry, and the Nizhne-Vartovsk complex in the Ministry of the Chemical Industry, while only the Tobolsk and Surgut projects were substantiated and elaborated by institutes of the USSR Ministry of the Petroleum Refining and Petrochemical Industry. You may be surprised, but at the time the government adopted the decision on the five projects and on the expenditure on them the feasibility studies were not ready for all these projects. So it was not for nothing that the scientists were anxious, no matter whom this irritated at the very top.

The boss of two construction projects—at Tobolsk and Surgut—is the USSR Ministry of the Petroleum Refining and Petrochemical Industry, a superministry which was able, on the whole, to defend its positions in the argument for the project. But tomorrow, when the combines at Surgut and Tobolsk have been constructed, will this not nonetheless confirm the rightness of those who today continue—like the economist and publicist O. Latsis, for example, in the newspaper *RABOCHAYA TRIBUNA*—to warn that foreign firms will extract profits at the expense of the Soviet partners? And this will happen—he is echoed by V. Ivanter, another economist—by virtue of

the fact that a Western businessman is better able to count up expenditure and income than our technical manager at either plant or ministry level.

Life teaches us, moreover, that ministers and ministries exist today but not tomorrow. So who can be called to account in five or ten years' time?

When I wished to ask N. Lemayev, the head of the petrochemical superministry, what he thinks about this, he himself began with—you might say—philosophical matters:

"I think about the fact that I had my 60th birthday last year. And I personally need little now. My granddaughter and great-granddaughter are another matter. What will they end up with as a result of our present work? What kind of air will they breathe? What kind of water will they drink? What natural resources, in general, will they be left with? And when I think about this, I ask: Who gave us the right to manage these resources the way we are doing today? What kind of economy have we created and are we building?"

On hearing this, I thought: He is a minister, but he is not devoid of emotion. However, the minister moved on from pure emotion to export and import data.

"Extracting more oil than anyone in the world, we sell one-third of it (with gasoline and fuel oil, this amounts to approximately 200 million tonnes) abroad. The oil itself at \$100 a tonne, and the gasoline and fuel oil—they feature in our statistics as 'petroleum products'—at \$150-200. At the same time we use this same oil to produce four to six times less plastics per capita than the United States or Japan—which, as we know, extracts no oil at all but buys it. We have a deficit of tens of thousands of tonnes for polymers such as polypropylene and thermoplastic elastomers. The picture is no better with regard to others. If radical measures are not taken, the deficit will have more than tripled by the year 2000. I will point out here that one tonne of polypropylene costs \$1,030 on the world market, and one tonne of thermoplastic elastomers costs \$2,730.

"What is the result? Our oil stocks are rapidly declining, and oil extraction is becoming increasingly costly. But we are spending more and more petrodollars in order to buy the products of that same oil. Thus, next year we must buy chemical products worth several billion dollars. But that is not all. Some petrodollars go to buy pipes, and oil workers need more and more pipes in order to work at all competently.

"It is clear that the oil workers will never have enough pipes—a vicious circle!

"It must be clear from this alone," the minister continued, "that we are in bondage. And we will be in still greater bondage tomorrow unless we take urgent, radical measures. What else must be taken into account? With the reduction in stocks an ever-greater amount of casing-head gas, which contains substances that have to be

burned off or processed, will be extracted together with oil in the future. So, whereas 12 billion cubic meters of casinghead gas plus 30 billion cubic meters of atmospheric oxygen are being burned in West Siberia today, forming thousands of tonnes of harmful discharges, tomorrow the picture will be still worse. Again, unless measures are taken. Tobolsk and Surgut are only part of these measures. I also propose the following measure: to reduce oil extraction by one-third, leave this for the future, and channel the funds saved into the development of machine building and into in-depth oil refining."

"Have you put this proposal to anyone?"

"I have. Above all, to West Siberian oil workers themselves. There is something to think about here. Let us recall that the Japanese miracle stemmed precisely from petrochemicals. It was the petrochemical industry that made it possible to obtain new materials for car manufacturing, electronics, and technical progress in other spheres. But we are burning off our opportunity to become a modern country, forgetting that, by deepening refining, we could turn one tonne of the products that are flared off into consumer goods worth at least R15,000. Is this not a way to resolve the problem of the state budget deficit, the problem of filling the market with cars, video recorders, refrigerators, detergents, and fragrances? Is this not a way to provide garment and footwear workers with modern materials? Or take housing: cast iron pipes and baths, glazed pottery toilet bowls, basins, mill-work—the civilized world long ago abandoned all this and went over to modern materials, including finishing materials. Without this we will not resolve the housing problem for a long time, we will not ultimately improve people's general social state, and we will not change their motivation to work. Yet we ourselves must at some time derive benefit from our riches! I would like the project's opponents to dispute it taking these factors into account, i.e. to take a broader view of things and of the world in which we live.

"It all seems true: The economic approach must not be divorced from specifics. But the technical approach, if divorced from the economy, is also blind and unpromising. How can we brush aside the fact that the world or, rather, the country where the project's opponents and supporters live simply does not have R100 billion to spare for even the most attractive project? Where are we to find R100 billion if we do not even have R10 billion to modernize petrochemical enterprises? In addition, the project's opponents fear, not without reason, that while reducing the number of protracted construction projects we will get bogged down in new—petrochemical—ones. And what would be the point of that? And, of course, the opponents are concerned about the prospects for the ecology in the region. Flaring is harmful, but are the recent discharge of phenol in Ufa, for example, and other accidents of that kind really any better?

"Let whoever calculated the obviously rounded total of R100 billion explain it," the minister said. "I believe

that it is once again the result of a speculative rather than a concrete approach. And I say in turn that, with specific regard to Tobolsk and Surgut together, the costs will total \$2.5 billion plus R5.5 billion. That is, together with the social sphere. True, now that a joint venture is being established on the basis of the Tobolsk combine, we must specify the proportions of the partners' involvement in the statutory capital and the output quotas on the foreign and the domestic market: in short, keep a balance of interests among all sides. I consider the chief point to be the fact that projects of such complexity and scale are nothing new either for us or for our partners.

"Wishing to avoid protracted construction and even to accelerate the project's commissioning, we intend to make the foreign partners responsible for the construction site's engineering backup. There are takers. Hyundai, for example, a major association of firms constructing very diverse projects all over the world.

"As regards modernization—and we do not take a detached view of this—in terms of cost and the scale of the work it most frequently turns essentially into capital construction, because everything has become so obsolete. Account must also be taken of the fact that additional capacities are needed in order to ease the load on the capacities to be modernized. These can be created today only in West Siberia.

"And, finally, ecology. The Tobolsk project fully meets all modern requirements—this is the conclusion of the USSR State Committee for Environmental Protection. Questions partly remain with regard to Surgut. In both those cities people who openly and firmly supported the petrochemical industry have been kept in office by an electoral majority following very intensive debate. Why? I believe that an understanding of the fact that chemistry must be transformed from a violator of tranquillity into an ally and a support in resolving ecological problems has become a part of the ecological awareness of people in those cities, where petrochemical production facilities have been operating for many years."

[Lynev] "Everything is fine in this discussion except for one thing. Do you know what it is? Your opponents are not involved."

[Lemayev] "I do not avoid meeting them. On the contrary. I have met them repeatedly, heard them out, and argued with them, including the writers of the letter to IZVESTIYA. I am prepared to do so again and again. How could it be otherwise? In the economy, as in politics, there must be a place for debate and an opportunity to compare different options. The time when the play all moved one way is over....

"It would be possible to end it here. But would it be for long? Will not a new round of arguments begin tomorrow? Well, we do not close the door to them."

Karabash Copper Smelting Furnaces Shut Down

*LD0905083290 Moscow Domestic Service in Russian
2230 GMT 8 May 90*

[Summary] By demand of the public and of the Chelyabinsk Oblast Committee for the Protection of Nature, the furnaces of the Karabash copper smelting combine have been brought to a halt. Built at the beginning of the century, this enterprise has been operating almost without renovating its equipment. While production of blister copper has constantly increased, nothing was being done to protect the atmosphere from harmful emissions. Each year the combine emitted over 170,000 tonnes of poisonous substances. That is why people in the town, and especially the children, started falling sick more frequently than anywhere else in the oblast.

Alarmed by the deteriorating ecological situation, the population launched a struggle to close the old workshops and their activities were crowned with success. Reconversion of output to the production of bronze from copper waste started in accordance with a technology which is harmless for the environment. The USSR metallurgy ministry has allocated R13 million for these purposes for the current year.

Pollution Causes Closure of Crimean Beaches

*LD1205125490 Moscow Domestic Service in Russian
0700 GMT 12 May 90*

[Text] A period of summer holidays is near. Unfortunately, we have bad news for many of those who planned to spend holidays in the Crimea or southern Ukraine. Following accidental outbursts of waste effluent, all the beaches in Feodosiya and Saki, the Solnyshko, Pribrezhniy, and Novyy in Evpatoriya, some beaches in Simeiz and Kerch have been closed. The Azovstal and Ilyich metallurgy combines and coking coal enterprises in Mariupol have polluted the Azov Sea to such a degree that the beaches on the famous Berdyansk spit, in Primorsk, and other places on the Azov Sea coast had to be closed. Some Odessa beaches are under threat of closure, too, owing to pollution of the Black Sea coast.

Opposition to Amur River Power Plant Project Reported

*LD2205094390 Moscow World Service in English
0700 GMT 22 May 90*

[Text] The plans to carry out a power engineering project, The Taming of the Black Dragon, are resisted by the population of the Amur region bordering on China. The project provides for building on the River Amur a chain of seven power plants which will supply neighboring China with electricity. The construction is stipulated by an intergovernmental Sino-Soviet agreement, but the project has not been subjected to an independent ecological study yet.

The administrative center of the Amur region, Blagoveshchensk, is forming a public environmental

protection commission which is resolved to seek to safeguard the River Amur. Some experts believe that the construction of several power plants on the river will do irreparable harm to the local environment.

Environmentalists Take Local Council Posts in Maritime Kray

*LD3004134190 Moscow TASS in English 1326 GMT
30 Apr 90*

[By TASS Correspondent Yekaterina Yakosh]

[Text] Vladivostok, April 30 (TASS)—Representatives of the Greens were recently elected for the first time to councils of all levels in maritime territory (south of Soviet Far East).

Yuriy Sergeyev, a geologist at a prospecting expedition and a founder and leader of the ecological movement in the territory, has become a people's deputy of Russia.

He believes that the success scored by the Greens illustrates the population's mounting concern about the disastrous condition of the region's natural resources—air and river pollution and depletion of forests. Environmentalists are in need of real power in order to stop the ruinous process, Sergeyev maintains.

"In that case we will not be limited to just stating the existence of projects that are fraught with unpredictable damage to people and nature. We will be able to avert ecological ventures," Sergeyev told TASS. "Deputy's mandates and the parliamentary rostrum will help us attain this goal."

This is the first time Sergeyev tried to stand for a position in the government. He is gratified by trust placed in him by almost 130,000 residents of the territory.

This trust consolidated his position in the environmentalist campaign. Now the campaign must prevent the construction of a hydropower station and a nuclear power plant in Krasnoarmeisky District of maritime territory, he believes.

Sergeyev was among the initiators of a public group that proved the hazardous nature of the construction plans.

Geologists from his geological party, upon studying the structure of rocks in the region, proved the instability of the natural foundations at the site of the contemplated power projects: It turned out that a tectonic fissure runs across the area.

"We do not deny the need to construct power projects," Sergeyev explained. "We are only against the power sector's gigantomania, which is ruinous to the environment, the country and people. It is unethical to simply state—the Taiga or a power station.

"The Ussurian Taiga has no analogues by its flora and fauna. It has already been seriously depleted by logging

operations, agricultural pesticides and mining. Therefore the maritime territory does not simply need new power projects. First of all it needs a scientifically-substantiated power programme."

The majority of residents of the territory welcome the election of members of the ecological movement to local government bodies.

At present not only local residents in the Far East but also those who arrived there from the European part of the Soviet Union are convinced that errors that were made in other places should not be allowed to be repeated in maritime territory, on the Amur and other areas of the Soviet Far East. The Far Eastern Greens, who are members of local councils, intend to pursue this goal.

'Green' Movement Holds Founding Session in Baku

*LD0805204390 Moscow TASS International Service
in Russian 1109 GMT 8 May 90*

[Text] Baku, 8 May (TASS)—The Caspian, which is polluted by industrial and domestic waste, and the dead zone around the chemical factory of Sumgait—these and other sore points in Soviet Azerbaijan have become an object of fixed attention for the Greens in this republic in the Transcaucasus. The movement held its constituent conference in Baku today.

Among those who are campaigning for environmental purity are teachers and academics, staff at the republic's Committee for Environmental Protection, and sanitary-epidemiological stations and students. The aim of their actions is to normalize the ecological situation in the republic and improve legislation on environmental protection and bring it into line with international conventions.

The Greens are demanding complete declassification of information on ecological and health emergencies and favor independent ecological expert inspection of important national economic installations.

Evaluation of Military's Impact on Georgia's Environment Requested

*90UM0500B Tbilisi ZARYA VOSTOKA in Russian
31 Mar 90 p 3*

[Letter by Levan Sanikidze, chairman of the Georgian Demographic Society to Col-Gen V. Patrikeyev, troop commander of the Red Banner Transcaucasus Military District: "Letters To The Editor"]

[Excerpt] The editors have received letters whose authors address themselves to Colonel-General V. Patrikeyev, Troop Commander of the Red Banner Transcaucasus Military District.

Dear Valeriy Anisimovich!

The Transcaucasus region holds third place in the USSR, after the Donetsk-Dnepr and Ural economic regions, in

terms of overall anthropogenic impact on the environment and level of degradation of the natural environment.

Two of the republic's cities—Rustavi and Zestafoni—are among the 68 Soviet cities that the USSR State Committee for Hydrometeorology has identified as industrial centers with the most severe air pollution.

Intensifying processes of degradation of natural systems have been noted in Georgia, as have growing levels of pollution of the atmosphere, river arteries, and topsoil, factors that are restricting the natural habitat of flora and fauna, increasing the incidence of disease and death rate among the population, having a negative effect on quantitative and qualitative indices for agricultural production, and detracting from the quality of recreational resources, in particular the Black Sea coastline.

Ecological problems in various regions are taking on political overtones and becoming an additional cause of confrontation not only between the republics and center but also with the military establishment. This is borne out by numerous events in both the country as a whole and the Georgian SSR.

In light of democratization and perestroika in the country, and at a time when the political and economic sovereignty of the republics is deemed an essential factor for the further development and renewal of our society, as well as at a time when our military doctrine is being transformed with the aim of limiting and reducing the size of the Armed Forces, the Red Banner Transcaucasus Military District could, without any particular damage to the USSR's defense capability, dismantle (or relocate) a number of military installations in Georgia's resort areas. This would make it possible to significantly expand recreational facilities for children gasping for breath in the urban agglomerations as a result of air pollution.

An initiative on the part of the Red Banner Transcaucasus Military District to evaluate the impact of military installations (test ranges, radar stations, and others) on the environment and to improve the ecological situation in the areas in which military installations operate, as well as to reduce their number, would meet with due understanding on the part of the republic's people.

The Georgian Demographic Society would appreciate your making your views known on this problem.

Commission Announces Ufa Chemical Accident Findings

*90WN0056C Moscow PRAVDA in Russian 30 Apr 90
Second Edition p 8*

[Governmental Commission's Report on Eliminating the Accident in the City of Ufa]

[Text] The governmental commission created on instructions from USSR President M. S. Gorbachev and in conformity with the 10 April 1990 USSR Council of

Ministers order No. 554—consisting of V. K. Gusev, deputy chairman of USSR Council of Ministers (commission chairman); I. V. Lemayev, USSR Minister of the Chemical and Petroleum-Refining Industry; A. A. Banenko, deputy chairman of RSFSR Council of Ministers; N. M. Olshanskiy, chairman of Agrokhim; O. M. Nefedov, vice-president of USSR Academy of Sciences; M. P. Mirgazyamov, chairman of the Bashkir ASSR Council of Ministers; A. I. Kondrusev, USSR chief sanitation physician; and V. I. Lapshin, deputy chairman of Agrokhim—after traveling to the scene, viewed the consequences of the contamination by phenol of the drinking water in the water-supply system for the southern part of Ufa and the steps that were taken to eliminate the consequences of the accident.

As is shown by a careful study of the situation, the reasons why the phenol got into the water were the crude violations of production discipline; the criminally sloppy attitude of the service personnel in the Khimprom Association toward the operations for reloading that product; and the large spillings of the product; as well as the failure to observe the proper conditions for pumping off the industrial and rain runoffs containing phenol.

With the beginning of the intensive melting of the snow, the flood waters covered the territory around the drainage pumping station for industrial and rain runoffs, and, now mixed with phenol, got into the Ufa River, from which, by means of a water-collection system, drinking water is supplied to the southern part of the city of Ufa.

I. In the evening of 29 March 1990, a strong odor of phenol was detected in the drinking water. On that same day an emergency commission of the city's ispolkom was formed. As a result of the prompt actions, on 31 March the source of the pollution was localized; the population was informed about the rules for using the water; round-the-clock operation of medical institutions was organized; and provision was made for shipping in drinking water in railroad tank cars for the population in the southern part of the city, public-health organizations, children's preschool institutions, and enterprises in the food industry. There was a doubling of the sale of mineral water.

The workers in all the city services, jointly with representatives of RSFSR Minzhilkomkhoz [Ministry of Housing and the Municipal Economy] and with the production collectives, carried out a large amount of work, thus making it possible by 12 April to normalize the quality of the drinking water and to bring the phenol content in the water-supply system of the southern part of the city to 1-1.5 of the standard for open bodies of water. On 13 April chlorination of the tap water in the southern water-collection area was resumed, on 14 April the drinking water corresponded completed to the state standard, and on 18 April all limitations on water use were removed.

As was noted by all the members of the governmental commission, the actions taken by the local agencies and all the services of the city's economy were prompt and efficient.

II. The governmental commission and the soviet, party, and economic agencies of Bashkiria devoted special attention to the population's health condition. Commission members specially reviewed that problem, and had discussions with workers and the population.

USSR Minzdrav [Ministry of Health], jointly with Bashkir ASSR Minzdrav, established that from 29 March through 20 April 356 adults and 54 children were taken to the city's therapeutic institutions. In 278 of the persons admitted, no objective signs of the effect of the contaminated water were detected. As of 23 April, 15 persons were in-patients, including seven children with aggravations of previously existing chronic diseases of gastrointestinal tract. No cases of phenol poisoning were established. Continuous outpatient treatment for children was begun.

In order to render assistance to public-health institutions, specialists were sent to Ufa from USSR Minzdrav and RSFSR Minzdrav, and provision was made to organize the additional delivery of medicines and medical preparations, with a total value of more than 3 million rubles (glucose, Analgin, Festal, and pancreatin—a total of more than 20 different products), Rodnik household filters (100,000 of them), food products (sugar, flour, juices, vegetable oil, etc.), as well as manufactured articles (refrigerated chests of various sizes, electric coffee and tea makers, water heaters, toilet soap, etc.).

Monitoring is being carried out to oversee the first-priority measures to purify the territory around the basic water-collection area at the Ufa River, to eliminate the violations in removing industrial waste products to the city dump, to complete the construction of the environmental-protection projects, and to accelerate the construction of the second phase of the city's water main and to activate it in the third quarter of 1991. Instructions were issued to allocate the necessary material-technical resources for these purposes.

In conformity with the numerous requests from the public, a group of specialists from the World Health Organizations has been invited to provide consultation. The arrival of that group is expected on 30 April.

Meetings were carried out with Ufa's party and economic aktiv, and there was a two-hour dialogue over television and radio with representatives of the public. Commission members met with informal unions and a united committee of the public organizations of Ufa and Blagoveshchensk.

A file identifying the persons responsible for the accident that occurred has been handed over to the procuracy.

For Agrokhim's Khimprom Production Association in Ufa, measures have been worked out, the implementation of which by as early as 1990 will completely preclude the possibility of any unpurified runoffs from getting into the Ufa River.

An order extending to the Agrokhim association stipulates the completion of the construction during the

current year of major purification structures, the creation of systems for automated monitoring and emergency switching off of the equipment and product pipes in the event that they are not in working order, as well as the carrying out, during the next two years, of the fundamental remodeling of the association's basic shops and the taking of several of them out of operation.

III. For purposes of fundamentally improving the ecological situation in Ufa, the governmental commission, jointly with the local agencies of authority in Bashkiria, with a consideration of the recommendations from public organizations, has sent to USSR Council of Ministers a draft of the decree that sets down the measures to remodel the enterprises in the chemical and petroleum-refining industry that are situated in the city.

Strike Threatened in Ufa Over Chemical Works

*LD1205121190 Moscow World Service in Russian
0937 GMT 12 May 90*

[From the "Soviet Chronicle" feature of the "Soviet Union Day by Day" program]

[Text] An INTERFAX correspondent reports from Ufa that the public of the city has planned for 13 May the holding of a Green Ecological Chain demonstration in protest against the continued operation of the Khimprom [chemical industry] industrial association, which is the main villain for the ecological catastrophe in Ufa. Extraordinary discharges of ethanol some time ago poisoned people, and put out of action the water pipes in a number of southern rayons of the capital of Bashkiria. The Combined Committee of Public Organizations, which was formed to monitor the ecological situation in the city, is urging residents in Ufa to commence a warning strike on 21 May if, even after the holding of the Ecological Chain demonstration, the operation of the Khimprom enterprise is not stopped. The Chain, reports the INTERFAX correspondent, will stretch 40 km from the Khimprom production association to the city's administrative center.

Ufa Human Chain Environmental Protest Reported

*PM1605093790 Moscow IZVESTIYA in Russian
15 May 90 Morning Edition p 2*

[IZVESTIYA correspondent Aleksandr Zinovyev report under the "Direct Line" rubric: "Environmental Action"]

[Text] Ufa—The people of Ufa conducted an environmental action—a "human chain"—13 May.

It was organized by the united committee of public organizations advocating the closure of the most hazardous workshops at the "Khimprom" Production Association, whose industrial effluent was discharged into drinking water at the end of March. The contamination of the water supply was the last straw that broke the back of the people of Ufa's patience. There was a wave of rallies demanding the stoppage and conversion of a number of production units in Ufa and the neighboring

city of Blagoveshchensk. These demands were supported by sessions of the Ufa City Soviet, the Bashkir ASSR [Autonomous Soviet Socialist Republic] Supreme Soviet, and the CPSU obkom and gorkom [oblast and city party committee].

Bashkir ASSR scientists and economists proposed their draft of a USSR Council of Ministers resolution "On the Emergency Environmental Situation in the Cities of Ufa and Blagoveshchensk." This document was discussed at a meeting in the Kremlin between the autonomous republic's leadership and N.I. Ryzhkov, chairman of the USSR Council of Ministers.

The aim of the last action taken by the people of Ufa was to strive to spur the authorities to speed up the adoption of radical measures to improve the environmental situation. People carrying slogans, posters, balloons, and green, blue, and white ribbons came out onto the city streets and, at a fixed time, joined hands and formed a human chain stretching 40 km from the autonomous republic's Council of Ministers building to the entrance of "Khimprom."

Strike in Ufa Protests Environmental Crisis

*LD2205090590 Moscow TASS in English 0734 GMT
22 May 90*

[Text] Moscow, May 22 (TASS)—A three hour warning strike paralysed Ufa, Soviet Bashkiria's regional capital, on Monday, as local residents protested over the worsening environmental crisis in the area, the GUDOK newspaper reported today.

The strike was called by the United Committee of Local Public Organisations.

The action follows an ecological disaster early in April when the Khimprom chemical plant dumped poisonous phenol liquid into the local water-supply system.

Authorities have completed the clean-up after the accident, but the public demanded guarantees from republican and national authorities against similar incidents.

On May 13, tens of thousands of Ufa residents joined hands in a human chain to demand the closure of hazardous chemical plants within city bounds.

Report on Donbass Plant Poison Leaks

*PM1105142390 Moscow IZVESTIYA in Russian
11 May 90 Morning Edition p 6*

[Dispatch by correspondent N. Lisovenko: "The Poisonous Smell of Almonds"]

[Text] Donetsk—Misfortune has again struck the Donbass. Following the disaster at the "Aleksandr-Zapad" mine, when three miners died and 80 were injured to varying degrees as a result of a leak of chlorobenzene at the Gorlovka chemical plant, signs of mass poisoning started appearing in the neighboring "Uglegorskaya" mine at the end of April.

Thirty-five people complaining of headaches, high blood pressure, and an accelerated heartbeat have already been hospitalized in the oblast hospital for occupational diseases. The "Uglegorskaya" mine has been stopped in order to avoid more serious consequences.

The fact that a smell of almonds has been noticed in mineshafts in Kalinin and "Kondratevskaya" mines and that it causes ill health was reported by workers in these enterprises located near to "Uglegorskaya" mine. A state commission, headed by Nikolay Surgan, deputy chief of the Ukrainian state mining technical inspectorate, carried out an investigation into the reasons for the emergency and came to the conclusion that the same chemical plant was to blame for everything—or, to be more precise, the scrap heap at that plant, where harmful waste from industry has been heaped up for 30 years. Around 1,500 compounds have formed from this waste, including some which were previously unknown. Something in the products from the reactor where the emergency occurred could have turned out to be the most poisonous of poisons.

Over 300 specimens of air, water, and soil were taken for laboratory analysis. They showed the presence of phenol, formaldehyde, and some other, still unidentified compounds.

On the recommendation of the state commission, which has completed its task, measures were taken which should prevent chemical substances from the chemical plant's premises from finding their way into the Volyntsy drinking water reservoir, which supplies nine mining villages.

Realizing that the dimensions of the incident are getting bigger, the state commission and social organizations from Gorlovka and Yenakiyevo appealed to the USSR Council of Ministers for assistance, and the Council of Ministers formed a special commission not only to resolve the question of which people and departments involved in the catastrophe are to blame, but also concern to deal with the problems of job placements for the many thousands of miners from the poisoned mines, the construction of facilities to prevent the further diffusion of this poisonous underground black spot, compensation for losses, and so on.

In a word, this is another case of damage totaling tens if not hundreds of millions of rubles.

Miners Demand Declaration of Disaster Zone

*LD1205045890 Moscow TASS In English 2232 GMT
11 May 90*

[BY TASS correspondents Anatoliy Gordeyev and Vladimir Yurkevich]

[Text] Donetsk, May 12 (TASS)—Miners at the Ugelgorskaya coal mine in Yenakiyevo demanded that central Donetsk coal basin (the Ukraine's southeast) be declared an ecological disaster zone.

On Friday they were supported by coalminers from the neighbouring city of Gorlovka. The call was prompted by frequent cases of coalminers being poisoned at their workplaces.

Back in December last year, hundreds of miners at Gorlovka's Alexander-West mine were poisoned and three miners died because chlorobenzene, spilled at a local chemical plant, penetrated the mine workings. By decision of a government commission that investigated the causes of the emergency situation the mine came to a standstill temporarily.

Four months later, a similar situation developed at the Uglegorskaya mine. There was no loss of life but chemical substances that penetrated the mine forced the miners to abandon coalfaces. A government commission began to investigate the causes of the incident.

A preliminary sampling of the air and water in the mine workings revealed the presence of not only chlorobenzene but also benzene, phenol, styrene, acetone and other chemical substances. The miners of another two mines located near the Gorlovka chemical plant declined to go down into the mine, demanding safe labour guarantees.

Agencies of the prosecutor's office instituted criminal proceedings in connection with each case of group poisoning, Nikolai Demikdenko, public prosecutor of Donetsk region, told TASS.

Already now without waiting for the end of the investigations, residents of towns and settlements of central Donbas are mentioning the Gorlovka chemical plant as the direct culprit of the poisoning incidents. It is precisely there that the traces of chemical substances that penetrated the mines are leading.

For the time being, the sanitary and nature conservation agencies have closed the mines down. More than 10,000 miners are out of work.

The danger of water pollution in the region has arisen at the same time: the resident of ten towns of Donetsk and Lugansk regions may soon find themselves without drinking water.

The residential area of central Donbass are astir, with meetings and rallies being held. The miners demand complete information on what happened and the publication of results of chemical analyses, which the government commission expects to get in the middle of this month.

Commission Completes Investigation Into Mine Accidents

*LD2205155490 Moscow TASS in English 1505 GMT
22 May 90*

[By TASS correspondent Anatoliy Gordeyev]

[Text] Donetsk, May 22 (TASS)—A government commission that investigated the causes of accidents in a number of mines at Gorlovka and Yenakiyevo has

completed its work in central Donbass—the Donets coal fields in the Ukraine's southeast.

Miners got poisoned there because chlorobenzene, spilled at the Gorlovka Chemical Plant, penetrated the mine workings. Coal miners were indignant over the negligent attitude of the plant to environmental protection issues.

Coal miners demanded an investigation by a government commission.

The findings will be made public later. But it is already clear that the incident occurred because some large chemical plants in the region are criminally negligent about environmental protection. For decades they have been dumping chemicals on land plots, unsuited for the purpose, within the boundaries of cities, pouring off production effluents there.

The investigation is over. The operation of the Uglegorskaya Coal Mine, where work was suspended three weeks ago because chemicals penetrated coal faces, resumed today.

Maintenance teams began rehabilitation work. The supports in mine workings are being re-strengthened and the condition of machinery and mechanisms is being checked.

However, the situation in the miners' towns remains strained, although the strike committees decided against holding rallies until the final results of the government commission's investigation become known.

Not only coal miners but also the personnel of other factories and the public insist on safety guarantees.

Mine Poisonings Investigation Concluded

LD2305093190

[Editorial Report] Moscow Television Service in Russian at 1700 GMT on 22 May, during its "Vremya" newscast, carries a report on the seepage of chemicals into coal mines in Gorlovka and Yenakiyevo, thereby poisoning some miners. A government commission has

completed its investigation of the incidents. G. Kondaurov, caption identified, reports that three mines have not been working at all for some weeks. Workers, indignant at the slowness of the investigation, have held meetings. The Gorlovka Workers' Union and the strike committees urged them to give the commission time.

A.P. Tsygankov, deputy chairman of the USSR Council of Ministers Commission for Emergency Situations, caption identified, says the commission's conclusion is that at the Gorlovka Chemical Plant there was a large leak of formaldehyde, which seeped into the mine, causing rather serious pollution. The formaldehyde combined with other hydrocarbons to affect the miners. The video shows an open air meeting with blue and yellow Ukrainian nationalist flags flying.

Asked what sanctions will be meted out against the chemical factory, Tsygankov says that from 1 July the shop producing the formaldehyde resin and phenol spirit will be shut down because it could have been a source of the leak, since the technology and technical standards are very low there.

Kondaurov says that they were not allowed to film at the factory and that the management of the chemical factory has concealed for a long time from the government commission and nature protection organizations an illegal and secret dump of production wastes. It is now being covered with rubble and cordoned off with barbed wire. The video shows the dump. None of the directors has yet been made liable, he says.

'Independent' Radio Station for Ecological Movements Established

LD1105070290 Moscow Domestic Service in Russian 0200 GMT 11 May 90

[Text] An independent public radio station, Samantha RTV, has been set up. It is the mouthpiece of peace-making and ecological movements in the USSR. Its activities will be directed toward consolidating society's efforts associated with the protection of peace and the environment, and monuments of history and culture, as well as the moral and spiritual education of the individual. At first the radio station, named in honor of Samantha Smith, will function as a financially autonomous news center for the Soviet and foreign mass media.

EUROPEAN AFFAIRS

Fast Growth of Anti-Pollution Market Viewed

90WN0040A Paris DYNASTEURS in French Apr 90
pp 104-109

[Article by Philippe Thureau-Dangin: "When the Environment Supports Growth"—first paragraph is DYNASTEURS introduction]

[Excerpts] Anti-pollution industries in Europe are growing faster than economic activities: a Fr280 billion market today, Fr500 billion in 10 years! The "green" is becoming a competitive stake for all products. Is this the reconciliation between economy and ecology?

What if ecology was to become the leaven of economic growth over the next 10 years? A strange postulate when we remember the famous "Halt to Growth!" voiced by the Meadows report commissioned by the Club of Rome. At the time, ecology was considered an obstacle to industrialism and industrialists viewed anti-pollution regulations as an added cost, a charge which decreased margins.

Today, the paradox is not so great as to turn the outlook around. A comparison with work can shed light on the issue. Workers, which in the past were viewed solely as expenses in production costs, are now also considered resources (called "human"); they are profit mines. The same will be increasingly true for the environment: To protect it means expenses, but also advantages in terms of productivity, international competitiveness, etc. In addition, new markets are opening for both anti-pollution industries and "green" products.

In his "1989 Economic Data," the Secretariat of State for Environment goes as far as asserting: "The progress achieved by economic growth over the last two years has been accompanied (and was even partially fueled) by a much broader perception of environmental problems." The report refers in particular to "the forceful entry of the environment in the research and development policies of the industrial and service companies as well as in their marketing policies"... It remains that, although the environment is becoming a growth factor, the ongoing growth itself "fuels" and increases the pollution of seas, rivers, the air, etc. Observations prove this: The increase in toxic gas emissions—which had slowed down for a while between 1980 and 1985, during the years of crisis—has been rising again more than ever.

What will happen in 1992 if, as foreseen by the Cecchini report, the opening of the European borders leads to a rise—from 4.5 to 7.0 percent—in the GDP of the Twelve? We will have an increase in pollution. The conclusions of the experts gathered around Gunter Schneider on behalf of the Brussels Commission hardly leaves room for doubt. Between now and the year 2010, the economic growth resulting from the implementation of the internal market would lead to an increase in emissions of SO₂ (sulfur dioxide) from eight to nine percent and of NO_x (nitrogen oxides) from 12 to 14 percent." This does not

include emissions of CO₂, carbon dioxide, the gas blamed for causing the warming of the earth.

But the Schneider report, made public in January 1990, also concluded that new anti-pollution legislations or taxes would have no negative repercussions on economic activities. On the contrary! "Additional investments in the environmental sector, corresponding to one percent of the GNP, would be practically neutral at the macro-economic level and, in some of the countries of the Communities, they would even have positive effects on the GNP and on employment.

Could environmental protection be a support of the economy? It is not the first time that econometric models reach such a conclusion. Already in 1984, the OECD noted for an important "Environment and Economy" conference that, under certain circumstances, the increase in anti-pollution expenses could cause a GDP increase of up to 1.5 percent. The experts did not hesitate to destroy an accepted notion in passing; they explained that "the anti-pollution measures taken in the 1970's did not play, as it had often been claimed, a major role in the slowdown of productivity gains recorded at the time."

Michel Manuel, with the CEPREMAP (Center of Mathematical Economy for Forecasting Research Applied to Planning (CNRS [National Center for Scientific Research]), collaborated on this study; he stated: "My idea was precisely to prove the positive impact of environmental protection on growth. But I had to abandon my project temporarily, due to a lack of reliable data for devising a solid model. Certain figures are available on the subject of expenses. But it is much more difficult to assess advantages and productivity gains.

Even on the "expenses" side, the figures are not quite satisfactory. Michel Potier, the head of the OECD Environment Department, points out: "Computation methods differ from one country to the next, as do sectors taken into consideration. [passage omitted]

Marc Aviam, the man responsible for economic research at the Secretariat of State for Environment, confirmed that "the basic data must be handled with great caution."

In an attempt to put things straight, the OECD gives estimates of "environmental" expenses as a percentage of national GDP's, which results in a kind of honor list, with "champions," over 1.5 percent (the Netherlands, Germany, Japan); acceptable runner-ups (France with 1.3 percent); and the very last (countries of Southern Europe, between 0.7 and 1.0 percent). But here too, adds Potier, one must be cautious, "these figures cannot always be compared: Countries do not have the same needs—some spend less, for their environmental problems are less severe."

If the level of expenses has only an index value, computation of the impact on growth is even more difficult. According to the Brussels figures, it can nonetheless be noted that, following a decline in activities between 1980 and 1985, anti-pollution and ecological industries in

Europe have been growing more rapidly than the general economic activity. For France, the rise has hovered around six percent annually. Users aim for cleanliness and wholesomeness, and the consumers now react favorably to the "green" products. Companies are investing more and more in control, quality, security, clean technologies, etc. Those are not totally lost investments, which will later weigh heavily on margins or prices, but investments with real possibilities of amortization.

Marc Aviam believes that "the concept of the environment as a constraint penalizing the economic sector, is gradually giving way to the notion of the environment as a competitive stake, especially for product quality. Leaders now make the environment an essential element of the industrial choice." Yet, thinking habits do not evolve rapidly, as shown by a SOFRES [French Opinion Polling Company]-LE FIGARO poll carried out last November with 400 heads of enterprises: In fact, only 18 percent of them regarded environmental protection as "always" or "often" leading to productivity gains. Moreover, while 55 percent answered "seldom" and 16 percent "never," 55 percent admitted that, in their company, they had never done anything for the environment! Yet, results hardly leave any doubt: According to a survey conducted by the OECD with 100 French enterprises having adopted clean technologies, 69 of them had seen their production cost drop. Last January, the RES [expansion unknown] office of the Epsy group questioned 200 engineers and cadres from environmentally risky sectors (chemistry, energy, etc). To the question: "Is a good management of the environment important to the financial policy and earning power of the company?", the result was encouraging; 52 percent answered yes, 39 percent no. [passage omitted]

Michel Potier thinks that, currently, "environmental" investments account for five percent of industrial investments as a whole, with peaks of 10 percent, if not 20 percent, in certain sensitive, not to say polluting, sectors, such as chemistry, energy, papers and cardboards. Antipollution investments for the chemical industries worldwide amounts to nearly \$10 billion (out of a total of 75). As Jacques W. Cornut, with the Ciba-Geigy, explained during a CEFRI (Training Center for International Realities) symposium: "Technology tends to improve manufacturing processes in such a way as to lower the risks incurred by men and nature. Therefore, research, technology and ecology are now closely linked." At Nestle, an international commission is studying closely the packaging issue. Claude Landais, the official responsible for the environment in France, specifies: "We might use more 'ecological' plastics, if it gives an edge to marketing." To be sure, the "green" marketing which is flourishing almost anywhere is, often enough, nothing more than a camouflage.

It remains that environmental protection is becoming a competitive stake and, therefore, a factor of economic vitality. With or without a green label, the "ecological," or misleadingly called so, product can look forward to good days: batteries without mercury; biodegradable trash bags; phosphate-free detergents; CFC-free [chlorofluorocarbon] aerosols, etc., are so many examples proving that, today,

product replacements often pass through an "environmental" research. Side by side with consumers' demand, the users' collective requirements are perhaps developing faster. European citizens now consider the environment as a priority, with the result that governments can now reach agreements to launch research programs or action plans. Thus, the riverside countries have finally decided to "clean up" the Rhine, representing 82.5 billion francs to be invested between now and 1995. An expense which also implies an enormous market, especially for the treatment industries.

According to the BIPE [Economic Information and Forecasting Office], the four sectors, air, water, noise and waste, represent together a Fr280 billion market in Europe, which could reach Fr500 billion in the year 2000. The treatment of industrial waters, in particular, should grow by 10 percent annually (or clearly more than the general growth rate), if Brussels strengthens European standards as scheduled. On the other hand, Roger Chabrolles, the director of industrial projects at Degremont, foresees only a two percent growth for the treatment of city waters: "But be careful," he pointed out during the CEFRI symposium, "needs, which are practically unlimited, and markets, which are, perforce, limited, must be defined: It is a problem of political will in the North, and of solvency in the South." [passage omitted]

Consequently, beyond the treatment and control industries, pollution brings about new needs among the people, therefore new products, therefore new markets: from mineral water (without benzene) to Superslims, the Philip Morris USA new cigarette which "releases less smoke, etc." To which should be added, as so many economic "responses" to the threats of a contaminated environment, assurances against major technological risks, "bio" food products, processes encouraging energy savings, a segment of the sports industry and, tomorrow maybe, the burial of high-tension wires! It should finally be recalled that environmental protection measures also bring about, for the community, savings and benefits difficult to express in figures: less serious illnesses, less accidents, etc.

The rational decision of individuals and enterprises may have lead to a collective irrationality, which today needs to be corrected for the good of individuals and of enterprises. Economy and ecology have at least a common root, the Greek word oikos, the "house," a house the equipping of which is now planetary in nature.

BELGIUM

PSC Holds Special Environmental Congress

90WN0075Z Brussels LE SOIR in French
23 Apr 90 p 3

[Article by Ma. D.: "Painting a Green Coat Over the Orange: the PSC's 'Earth Objective'"—first paragraph is LE SOIR introduction]

[Excerpt] On the eve of the 20th annual Earth Day, the PSC (Christian Social Party) held a congress devoted to

the environment. It was a decisionmaking congress, with well-being as its objective. The means to this end turned out to be...development of Belgium's [environmental] inheritance. No question, then, of passively enduring ecological constraints: They are to be worked into the economic system. Here are the Christian Socialist recipes for doing so.

Is reconciling quality of life and the economy a dilemma? As far as the PSC [Christian Socialist Party] is concerned, the task is "entirely possible", for "respect for the environment becomes investment, added value, increased growth, and employment." To achieve this goal, the PSC is banking on several factors: family and formal education, the emergence of reflexes against waste, a sense of the responsibility of producers and consumers, the reconciliation of private and collective interests, common sense, and solidarity. A change of mentalities, then, is "sufficient"....

Yet the PSC realizes that no policy is credible without resources, and that an environmental policy without real scientific knowledge is no more so. That is why it has decided to accord "fundamental importance" to identifying and using the resources needed to insure that "times change." Which is to say that the PSC has decided to incorporate into its immediate political program certain principles and priorities, restated in the resolutions and Communal Charter for the Environment adopted by the congress.

The first principle is to allocate sufficient resources to basic scientific research, to expand knowledge of phenomena affecting the environment, and to draw up a complete inventory of the quality of habitats and of nuisances. The second principle is to provide information, training, and education about the environment, through the collaboration of families, businesses, public authorities, associations, etc.

The third principle is to define objectives and criteria for environmental quality, adopt cross-border agreements, and more rapidly implement European directives. An original idea: raise the quality standard higher than our neighbors whenever doing so would boost the competitiveness of our products and technologies.

Priorities number four and five are to establish government inspection and to apply, with caution, the "polluter pays" principle. The sixth principle involves assessment, comparing decisions to reality, and the actualization of strategies and tools. A final point concerned joint efforts and cooperation with developing countries. [passage omitted]

Christian Trade Unionists Focus on Environment

90WN0075X Brussels LE SOIR in French
28-29 Apr 90 p 3

[Article by B.V.: "The CSC in Green"—first two paragraphs are LE SOIR introduction]

[Text] Will the bright green flags of the Christian trade union be touched up with the soft green of ecology? This

Saturday the CSC (Confederation of Christian Trade Unions), whose congress has been underway for four days, will decide whether the environment is a labor priority as crucial as employment.

Yesterday the labor movement was just one vote short of a two-thirds majority committing it to the green path. This morning the question will be decided by a simple majority vote of all delegations. But the debate in which the Flemish led the race has spotlighted the new ecological responsibilities of the trade unionists.

"Protecting the environment is a union priority as important as optimal growth and full employment": so declared 65 percent of those casting ballots, while a large minority, primarily from the chemicals industry, opted for the classic division of labor—jobs for unions and the habitat for politics.

But the CSC is demanding greater severity of the government. It is calling for standards, inspections, and sanctions tied to company-aid grants to combat noxious products and processes.

The Malines local wanted to see sanctions go so far as to refuse operation permits. The Turnhout local—which includes Mol—tried to extend the "polluter pays" principle to waste retreatment. Such a move would have made electric power producers financially responsible for radioactive waste. It failed.

But the Malinese picked up the ball and scored a point. They passed a measure whereby safety and health committees are henceforth responsible for inspecting the entire waste chain.

These safety and health delegates will work with the help of both union and independent experts and institutes. The HSCs will require that they be informed of the implementation of "green" regulations by their companies and sub-contractors. They will give their opinion on the impact of new products "after mandatory examination by an outside body."

Outside of companies, the union has committed itself to cooperating closely with environmental and neighborhood associations. Turnhout would have liked to see this "common front" extended even to the inside of polluting businesses. The idea brought shivers to chemicals workers, but also to certain residents of Liege and Carolo.

Outside the congress, Walloon union organizations hoped to get, like the communes, eco-advisors financed by the Plus program.

NORWAY

New Environment Minister Summarizes Policy

90WN0012A Oslo AFTENPOSTEN in Norwegian
6 Apr 90 p 2

[Guest commentary by Environment Minister Kristin Hille Valla: "New National Environmental Committee"]

[Text]

- A tax on fossil fuels, increased support for energy conservation and new energy legislation.

A tax on gasoline. Taxes on automobiles favoring cars with low pollution. Higher tolls during rush hour.

Investments of 6-6.5 billion kroner in drainage facilities and efforts in the agricultural sector to conform to the North Sea agreement by 1995.

A special national environmental committee.

These are some of the measures the government announced in its position paper on environmental issues which was presented recently.

Extensive measures are to be implemented in the next few years so that we can meet our international commitments and our own goals with regard to reducing air and water pollution. The environmental policy is intended to be preventive and will cover all areas. Only by attacking the problems as a whole and not gambling with our environment and that of future generations, can we solve the problems. We will be successful only with an active commitment internationally while at the same time pursuing a credible and aggressive environmental policy in Norway. Current international agreements are only a step in this direction. New and more comprehensive agreements will follow.

Taxes

As to air pollution, the great challenge is a 30-percent reduction of nitrogen-oxide into the air by 1998 compared to the 1986 level and stabilization of the CO₂ release at the 1989 level by the year 2000. Taxes on fossil fuels, increased support for energy saving measures and new energy legislation are important measures within the energy sector which have positive effects on the environment. Our CO₂ goal sets limits for the use of natural gas in Norway.

In the transportation sector, the technical performance which will be required of all vehicles by the end of 1993 will result in considerable reduction of environmentally damaging emissions. In addition, new and stricter emission requirements will be considered. The emission requirements for boats will also result in considerable improvements of the environment.

However, all this is not enough. The increase in automobile traffic must be reduced, and transportation needs must be met increasingly by collective solutions. Important means for achieving these goals will be fuel taxes, automobile taxes favoring cars which are less harmful to the environment and higher tolls during rush hours. Likewise, transport plans for the 10 largest metropolitan areas and coordinated guidelines for area, road, and transportation planning will provide a basis for reducing transportation needs and strengthening the competitiveness of mass transportation. The pollution law shall apply to the transportation system.

Large Investments

A number of measures both in agriculture and municipal waste water drainage are to be implemented in order to

reduce pollution of "exposed sections" of the North Sea, i.e., from the Swedish border to Lindesnes. In addition, we will clean up local pollution problems—even if they do not affect the situation in the North Sea.

By investing 6-6.5 billion kroner in the waste water sector by 1995, we shall meet our international commitments. Positive results are expected from an ongoing R&D program for the clean-up of nitrogen.

To reduce the addition of nutrient salts from agriculture the following measures are under consideration: improvement of technical equipment, use of appropriate fertilizers, and no soil preparation in the fall in vulnerable areas. Increased taxes on synthetic fertilizer would be an effective measure. New measures are currently being developed.

The antipollution law is intended to reduce energy consumption and to encourage energy saving measures, to promote the safe use of low-pollution equipment and to encourage the recycling of industrial waste. New and strict emission controls have already been imposed on a number of larger companies which emit harmful substances into the air and water.

The municipalities will have to assume more responsibility for implementing the environmental policies.

Building Alliances

We are in the initial stage of a comprehensive readjustment program which will require great efforts and for which we all have to pay. It will be controversial, and we have to find solutions which will bring about the necessary results. Therefore, I consider it important to build alliances. Against this background, the government wants to establish a national environmental committee—headed by the prime minister and members of environmental organizations, and the main organizations from labor and industry.

Report Finds Little Pollution Threat From Soviet Sub Wreckage

90P20025A Oslo *AFTENPOSTEN* in Norwegian
25 Apr 90 p 4

Unattributed article: "No Serious Pollution From Submarine"]

[Text] The Soviet submarine which sank south of Bear Island in April of 1989 will not constitute any meaningful pollution threat if it stays in its present position. This is the conclusion of a report issued by a working group appointed by the Foreign Ministry. The report was also tasked with examining the possibility of raising the wreck, and the conclusion was that it is technically possible. The working group concluded, however, that if a raising of the wreck resulted in its breaking apart or in

its shifting position, the risk of the escape of a measurable amount of radioactive matter exists. In the long run it is not felt that such a release would constitute danger for the environment.

Post-Chernobyl Soil Radiation Levels Remain Elevated

90P20026A Oslo AFTENPOSTEN in Norwegian
24 Apr 90 p 4

[Text] Radioactivity in Norwegian topsoil continues to be two to three times higher than it was before the 1986 Chernobyl accident, according to a report issued by NGU [Norwegian Geological Study]. The Norwegian Wire Service has learned that in parts of the country the radioactivity from Chernobyl fallout can be still higher in relation to natural radiation levels.

The NGU report is built upon readings taken in two locations in Trondheim from May 1986 through June 1989. The measurements were begun a few weeks after the Chernobyl nuclear reactor was destroyed, and radioactive cesium rained down upon large parts of Norway.

The radiation has greatly reduced, but is still two to three times higher than the natural background radiation. The half life of cesium is 30 years. NGU's calculations mean that radioactive cesium is strongly present in the humus. The high cesium content in agricultural products, therefore, will continue to be a problem for many years to come, according to the report.

Strontium-90 Presence Termed Alarming

90WP0079A Oslo AFTENPOSTEN in Norwegian
26 Apr 90 p 20

[Article by Peter Beck: "Alarming Results From New Readings"—first paragraph is AFTENPOSTEN introduction]

[Text] The level of carcinogenic strontium-90 particles in plants and the soil in central Norway is 10 times greater than researchers had previously thought.

The alarming results of readings made at the Isotope Laboratory at As have shown that strontium fallout is just as high as it was after the test explosions of the fifties and sixties.

Shortly after the Chernobyl disaster German researchers suggested that the strontium level was 10 times less than it had been in 1950 through 1960. And attention was focused primarily on the cesium level in plants, the soil,

and food destined for consumption by humans. Now, however, it appears that the strontium level in the soil, vegetation, water, reindeer bones, and milk products from goats is far higher than expected. This is the case mainly in the areas around Dovre, from Valdres to Namsos, and north of Mjosa up to the Trondheim Fjord.

"Strontium-90 is a so-called carcinogen which is easily absorbed into the bones of animals and humans. Initially grazing animals are affected, but in certain areas the level of strontium in goat's milk and goat's milk products seems to be just as high as it was after the Soviet and American test explosions which were measured in 1964-65," said Professor Brit Salbu of the Isotope Laboratory at the Agricultural College in As. Salbu is one of the world's foremost particle researchers and, among other things, she is a specialist in the measurement of small quantities of particles.

"To be sure, the strontium level does not represent a health problem today, but we must be on the alert since radiation of the bone marrow can lead to bone cancer and leukemia. Furthermore, we know that whereas cesium is closely bound up with the topsoil, strontium is much more mobile, and as soon as the cesium level in vegetation diminishes, strontium will predominate. Besides, strontium has also been detected in some other countries, and it is scattered around; it does not follow the distribution of cesium fallout," Salbu said.

She said that in fact in some places the levels of strontium in vegetation and the soil are significantly higher than they were approximately 30 years ago when the alarm sounded. Moreover, strontium-90 can seep out in runoff, and when mountain snows melt, the level of strontium in rivers can become quite significant. On the other hand, for the time being, the level of strontium in cow's milk is very low, inasmuch as it appears to disappear more before reaching consumers.

SWEDEN

Radioactivity Levels Remain High in East Sweden

LD1905134190 Stockholm International Service
in Swedish 0930 GMT 19 May 90

[Text] The latest measurements of radioactivity in animals and crops in the Gavle area [eastern Sweden] show unexpectedly high levels four years after the nuclear power disaster in Chernobyl. The environment laboratory in Gavle has, for instance, measured 19,500 becquerels of cesium per kilogram in a pike caught in Lake Salgsjon.

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